EXPRESSBOX 3200 | 3200-S8

User Manual

PCIe to PCIe Expansion

Model:
EB3200 | EB3200-S8

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Preface

Advisories

Five types of advisories are used throughout this manual to provide helpful information, or to alert you to the potential for hardware damage or personal injury.

NOTE
Used to amplify or explain a comment related to procedural steps or text.

IMPORTANT
Used to indicate an important piece of information or special “tip” to help you

CAUTION
Used to indicate and prevent the following procedure or step from causing damage to the equipment.

WARNING
Used to indicate and prevent the following step from causing injury.

DANGER or STOP
Used to indicate and prevent the following step from causing serious injury or significant data loss

Disclaimer: We have attempted to identify most situations that may pose a danger, warning, or caution condition in this manual. However, Magma does not claim to have covered all situations that might require the use of a Caution, Warning, or Danger indicator.

Safety Instructions

Always use caution when servicing any electrical component. Before handling the Magma Expansion chassis, read the following instructions and safety guidelines to prevent damage to the product and to ensure your own personal safety. Refer to the "Advisories" section for advisory conventions used in this manual, including the distinction between Danger, Warning, Caution, Important, and Note.

- Always use caution when handling/operating the computer. Only qualified, experienced, authorized electronics personnel should access the interior of the computer and expansion chassis.

WARNING
Never modify or remove the radio frequency interference shielding from your workstation or expansion unit. To do so may cause your installation to produce emissions that could interfere with other electronic equipment in the area of your system.

When Working Inside a Computer

1. Before taking covers off a computer, perform the following steps:
2. Turn off the computer and any peripheral devices.
3. Disconnect the computer and peripheral power cords from their AC outlets or inlets in order to prevent electric shock or system board damage.

In addition, take note of these safety guidelines when appropriate:

- To help avoid possible damage to systems boards, wait five seconds after turning off the computer before removing a component, removing a system board, or disconnecting a peripheral device from the computer.
- When you disconnect a cable, pull on its connector or on its strain-relief loop, not on the cable itself. Some cables have a connector with locking tabs. If you are disconnecting this type of cable, press in on the locking tabs before disconnecting the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before connecting a cable, make sure both connectors are correctly oriented and aligned.

CAUTION
Do not attempt to service the system yourself except as explained in this manual. Follow installation instructions closely.

Protecting Against Electrostatic Discharge

Electrostatic Discharge (ESD) Warning
Electrostatic Discharge (ESD) is the enemy of semiconductor devices. You should always take precautions to eliminate any electrostatic charge from your body and clothing before touching any semiconductor device or card by using an electrostatic wrist strap and/or rubber mat.

Static electricity can harm system boards. Perform service at an ESD workstation and follow proper ESD procedures to reduce the risk of damage to components. Magma strongly encourages you to follow proper ESD procedures, which can include wrist straps and smocks, when servicing equipment.

You can also take the following steps to prevent damage from electrostatic discharge (ESD):

- When unpacking a static-sensitive component from its shipping carton, do not remove the component's anti-static packaging material until you are ready to install the component in a computer. Just before unwrapping the anti-static packaging, be sure you are at an ESD workstation or are grounded.
- When transporting a sensitive component, first place it in an anti-static container or packaging.
- Handle all sensitive components at an ESD workstation. If possible, use anti-static floor pads and workbench pads.
- Handle components and boards with care. Don't touch the components or contacts on a board. Hold a board by its edges or by its metal mounting bracket.

Chapter 1 ExpressBox 3200 Expansion

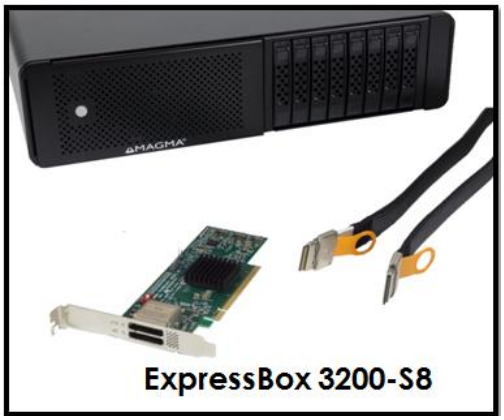
Precision engineered to Magma's mission critical standards for performance and reliability, ExpressBox 3200 featuresthree (3) full-length, full-height PCIe slots and flexibility with two customer configurable 5.25" expansion bays all connected through PCIe Gen 3. Designed with your work station in mind, the EB3200 has a rack-mountable aluminum chassis for integrated removable storage expansion, a 520-watt fan less power supply, auxiliary power, and features Magma's exclusive quiet cooling control.

The ExpressBox 3200 Expansion is compatible with a series of operating systems, including MacOS, Windows, Linux, and Solaris.

- Three (3) available full length/full height expansion slots
- Tool-less cover removal
- White power-on indicator front panel light
- One 80mm 33.4 CFM Expansion Card/Backplane Fan
- Variable speed thermistor control option (or full speed)
- Speeds up to 8 GT/s (PCIe x8 Gen 3)
- Connect PCI Express Host to Expansion over cable
- Use same PCIe interface card for both sides of the connection
- High Speed IO cable

Two Variants of EXPRESSBOX 3200 PCI Express

Product Name	Description
ExpressBox 3200	3 Slot – Expansion Only
ExpressBox 3200-S8	3 Slot – Storage



Use Magma's PCI Express Expansion to create a super-fast PCIe connection outside the computer
The ExpressBox 3200 is the perfect solution for creating a super-fast local PCIe connection from a host computer to a target PCI Express device. The Magma 01-08003-00 interface card installs into any x8 or x16 PCIe slot in the host computer motherboard and the other Magma 01-08003-00 interface card is inserted

into a designated upstream PCIe slot. A high-speed IO cable allows data transfers to and from the host computer at 64 Gbps (8 Gb/s per lane multiply by 8 lanes).

Features:

- High-speed x8 PCI Express connection
- Easy Plug and Play installation
- Low profile bracket provides for easy installation in low profile computers
- Easily visible LEDs that indicate correct installation and PCIe link width
- Low power consumption - less than 4 Watts
- LEDs show status of connection for quick debug- reset indicator, clock indicator, link width indicator
- Supports Spread Spectrum Clocking, LOS (Loss of Signal), LOL (Loss of Lock Indicator)
- Low Latency and Low Jitter
- Fanless 520 Watt Power Supply
- Auxiliary Power Cable

Benefits:

- Attach PCIe Cards to any Computers
- Extension of PCI Express signal outside the computer
- Daisy-chain or end-point device
- Transparent extension of PCI Express signals outside the computer
- No software required - connection is automatically recognized and configured by system BIOS
- Attach large power hungry PCI Express cards to computer with limited card space
- Low latency PCIe connection between host and target without using bridges or switches
- Same PCIe card used for both the host and expansion device
- Interface Card can be used with any PCIe compliant expansion chassis - Magma
- Automated x1, x4 and x8 link negotiation for PCI Express Gen1, Gen2 and Gen 3
- Ability to override automatic PCIe link training through dip-switch settings

ExpressBox 3200 PCI Express Specifications

Item	Description

Technology	PCI Express Bus Specification Revision 2.0 PCI Local Bus Specification Revision 2.3 PCI Bridge Architecture Revision 1.2
Backplane	(3) available full length/full height expansion slots, X8 PCIe Gen 2.0 Electrical - x8 PCIe Physical – x16 PCIe
PCIe Link Cards	Form Factor: X8 PCIE, low Profile, half length LED Indicators: PCIe Link width, reset clock
Interconnect Bandwidth	PCIe Gen 3 x16: 8 GT/s to all peripherals and host link
Physical Characteristics	Length 139.7mm (5.5 inches) Width 12.7mm (0.5 inches) Height 69.9mm (2.75 inches)
Cable	1-meter PCIe Gen 3 cable
Enclosure	2U Aluminum Desktop – Black 14.25" Wide x 3.48" High x 17" Deep (363mm x 88.4mm x 432mm) 8.5 lbs or 3.6Kg Tool-less cover removal White power-on indicator front panel light
System Cooling	One 80mm 49.5 CFM Expansion Cards/Backplane Fan Variable speed thermistor control option (or full speed)
Power Supply Options	520 W fanless, 100-240V, 50-60Hz Power Input Four 4-pin Molex Connector Two 6-pin + PCIe connector Input Frequency: 50-60Hz DC Output: 540 Watts Max +12V 43A -12V .5A +5V 20A +3.3V 20A +5Vsb 2.5A Total of +3.3V and 5V must not exceed 100W
Environmental	Ambient Temperature 0° to 50° C Storage Temperature -40° to 125° C Relative Humidity 5% to 85% non-condensing
MTBF	35k hours
Regulatory Compliance	FCC Class A Verified CE RoHS Compliant
Supported Operating Systems	MacOS 10.6.8 or higher, Windows 7 and Windows 8, Linux and Solaris
Warranty	30 day money back guarantee. 1 Year Return to factory

Pre-Installation Information

Before using the Magma Expansion chassis you should perform the following steps:

- Inventory the shipping carton contents for all of the required parts
- Gather all of the necessary tools required for installation
- Read this manual

Part List

ITEM#	DESCRIPTION	QTY
1	Host Interface card	1
2	3-meter High Speed / HD IO cable	1
3	Power Cord	1
4	Expansion Interface Card (Installed)	1
4	QSG (Quick Start Guide)	1
5	Rackmount Kit (Optional). For ExpressBox 3200 Rackmount model	1 set

ExpressBox 3200 (3 Slot Storage – Gen3)

Disk Drives are not included.

This model cannot be connected to a laptop. It uses a high speed PCIe cable that plugs into a Host Interface card which is installed in a PCIe slot of a motherboard Host Computer (Desktop, PC, Workstation, Sever, and similar form factors).

Components of ExpressBox 3200

Once you've completed your inventory, your next step is to get familiarized with components of the Magma ExpressBox 3200 expansion unit.

The expansion unit is composed of the following integral components

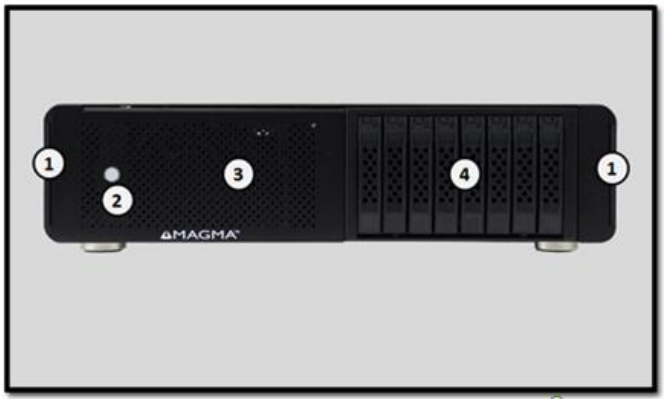
1. Expansion Backplane
    a. 3 PCIe slots (x8 electrical and x16 mechanical)
    b. One designated Link-Up slot for Interface card
    c. Slot LEDs, Link and Activity LEDs
    d. Thermistor control switch
2. Interface card
    a. Expansion and Host mode DIP switch
    b. Speed Toggle switches
    c. One Cable port (x8)
3. Power Supply, fanless
    a. Power cord socket
    b. On/Off Switch
    c. PCIe Aux power cable connectors
4. Fan
    a. 33.4 CFM
    b. Locking Thumb screw
    c. Air Flow: from outside going inside
5. Storage Bay
    a. Configurable 5.25" expansion bays

Front panel:

1. Front Panel Status LED
2. Front Air Ventilation cover
3. Configurable 5.25" expansion bays

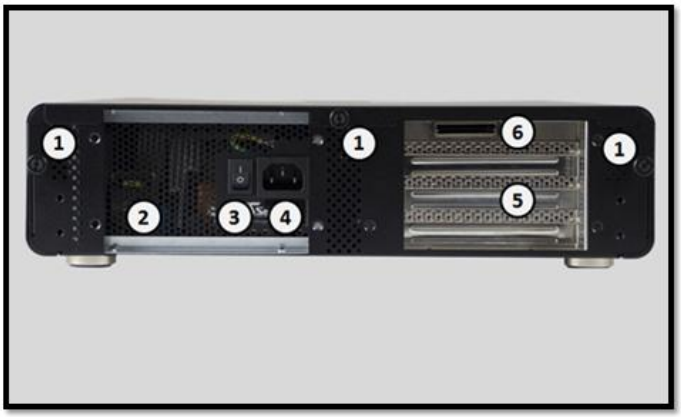
Rear Panel,

1. PCI Express card slot opening
2. Interface card cable ports
3. Power Supply (Power Cord & On/Off Switch)
4. Top cover Thumb Screws
5. IO Cable Port
6. Serial number



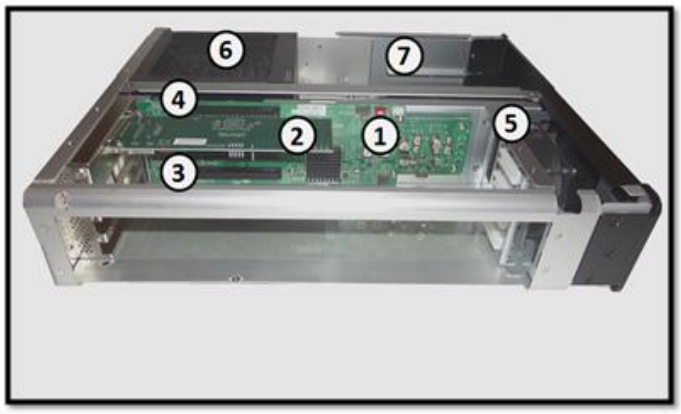
Item#	Description
1	Front Led
2	Air Ventilation
3	Storage Bay
4	Rack Ears Mounting Section

FRONT VIEW



Item#	Description
1	Thumb Screws
2	Fanless Power Supply
3	PSU On/Off Switch
4	Power Cord Socket
5	Card Slot Opening
6	Ipass Cable Port

REAR VIEW



Item#	Description
1	Expansion Backplane
2	Interface Card
3	PCIe Card Slot
4	Interface Card Slot
5	Front Fan
6	Fanless Power Supply
7	Drive Mounting Bay

TOP VIEW

Tools Required for Installation

To complete the installation of the Magma product you will need a Phillips-head screwdriver and ESD wrist strap to prevent electrostatic discharge.

Chapter 1-A Hardware Installation

The following steps will guide you through the installation of your Magma Expansion System.

CAUTION
Hardware installation shall be performed only by qualified service personnel.

Electrostatic Discharge (ESD) Warning
All add-in cards are susceptible to electrostatic discharge. When moving cards, it is best to carry the cards in anti-static packaging. If you need to set a circuit card down, be sure to place it inside or on top of an anti-static surface. For more information, see "Protecting Against Electrostatic Discharge" in the Preface.

WARNING
High voltages are present inside the expansion chassis when the unit's power cord is plugged into an electrical outlet. Disconnect the power cord from the AC outlet before removing the enclosure cover. Turning the system power off at the power on/off switch does not remove power to components. High voltage is still present.

CAUTION
Before touching anything inside the enclosure, move to an ESD station and follow proper ESD procedures. Failure to do so may result in electrostatic discharge, damaging the computer or its components. For more information, see "Protecting Against Electrostatic Discharge" in the Preface.

Installation-Procedures Overview

Below is the concise version on how to set up the ExpressBox 3200.

1. Open Enclosure
2. Install Expansion Interface card(s) (If not installed)
3. Install Host Interface card(s) into host computer
4. Connect Cable.
5. Install PCIe cards (see notes below)
6. Attach Power Cord
7. Connect to Electrical Outlet
8. Power on Computer
9. Hardware Check
10. Verify Installation (via Operating System)

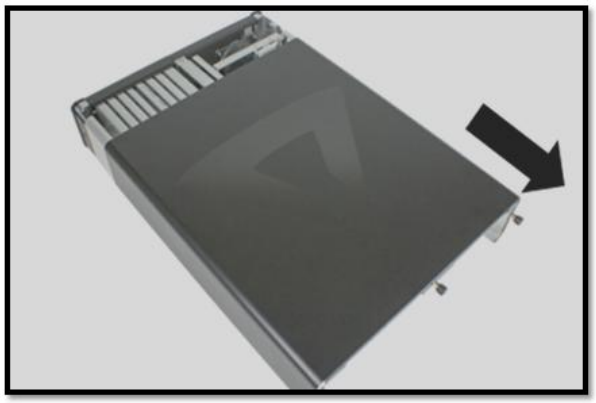
NOTE
It is highly recommended to install any 3rd party PCI-E cards / High Power PCIe cards after you have verified and tested that the Magma expansion chassis is functional and free of hardware failures.

When installing 3rd Party PCIe cards, start with one card first just to see if there are any software and / or hardware issues or incompatibility problems that may occur. This way you can troubleshoot the problem more easily and efficiently. If everything works well and there are no configuration issues, you can proceed with the installation of the remaining 3rd party PCIe cards.

Always refer to or read "3rd party manufacturer installation guide" for further instructions.

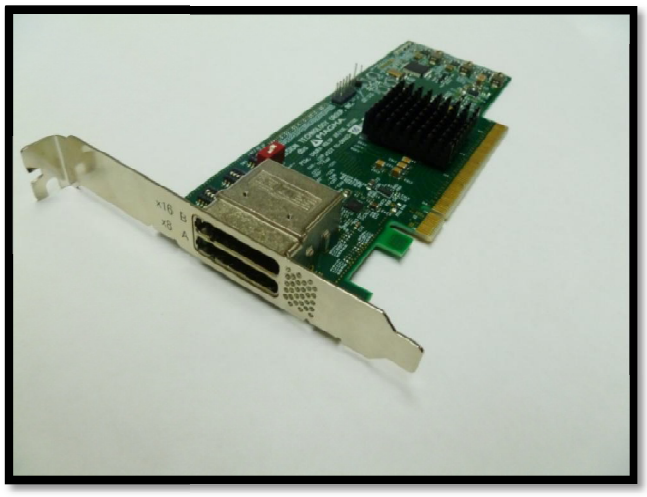
Open Enclosure (STEP 1)

Loosen the thumbscrews that retain the top cover of the chassis and slide the lid towards you as shown from the pictures below:



Install Expansion Interface card (STEP 2)

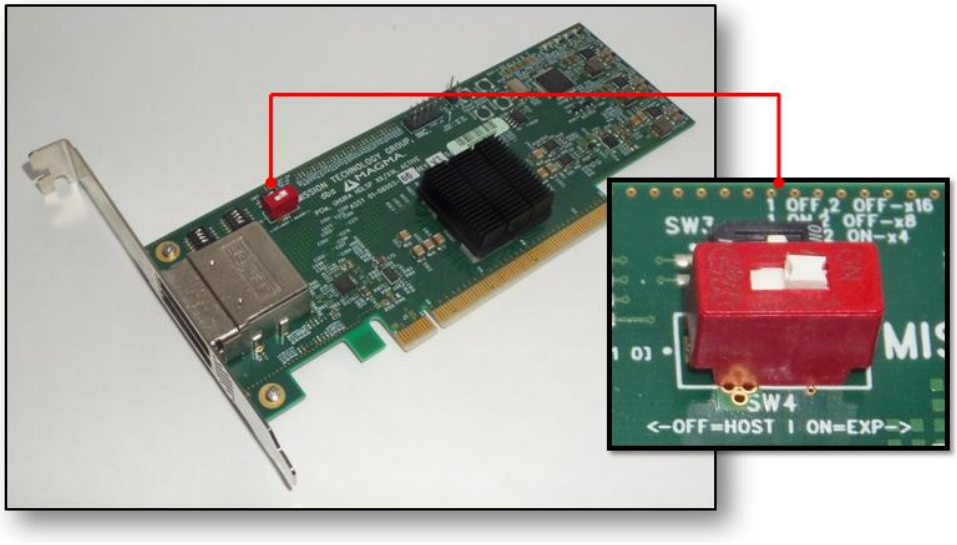
By default the Expansion Interface card is already installed. No need to install the Expansion Interface card.



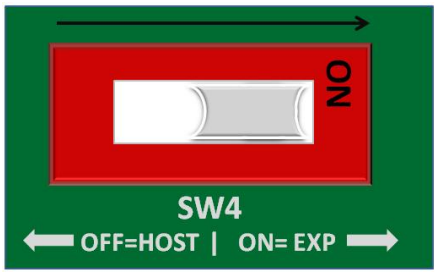
If you need to replace the Expansion Interface card or install a new Expansion Interface card follow these steps below:

1. Turn off the Expansion chassis first. Disconnect the power cord.
2. Unscrew the Expansion Interface card.
3. Install the new Expansion Interface card.
4. Plug-in the Expansion Interface card into PCIe slot#0. This is the designated slot for the Interface card. Installing the Interface card into a non-designated slot can cause the system to malfunction.

NOTE
Host Interface card (HIF), is the same exact card as the Expansion Interface card (EIF). The SW4 switch on the Expansion Interface card is set to "ON=EXP." The expansion system will NOT function if SW4 is set to OFF=HOST. See picture below for SW4 dip switch setting.

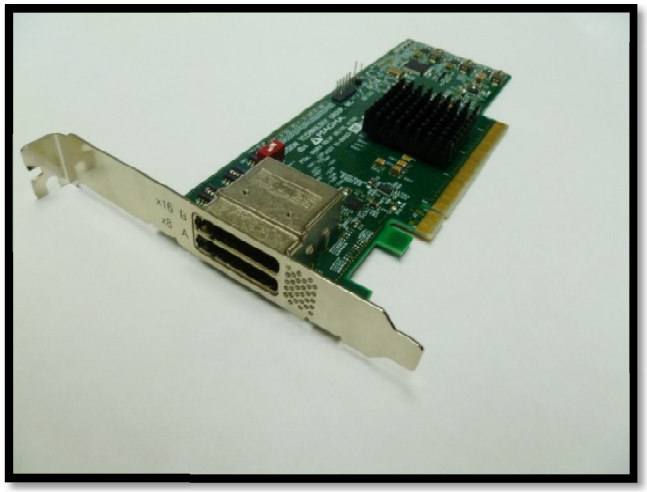


Make sure to check that the dip switch (SW4) is set to proper configuration. The toggle switch should be set to "ON=EXP" position, see picture below.



Install Host Interface card (STEP 3)

Begin the installation of your Host Interface card by first powering down your computer.
The Host Interface card is a "half-height," x8-capable PCIe card mounted to a "full-height" bracket, see picture below.



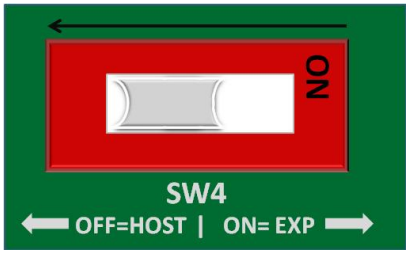
For low profile case applications, you may need to change the mounting bracket to the low profile bracket that shipped with your system, see picture below. This is done by removing the screws that hold the card to the bracket. Be sure you are using proper ESD procedures when completing this action.

WARNING

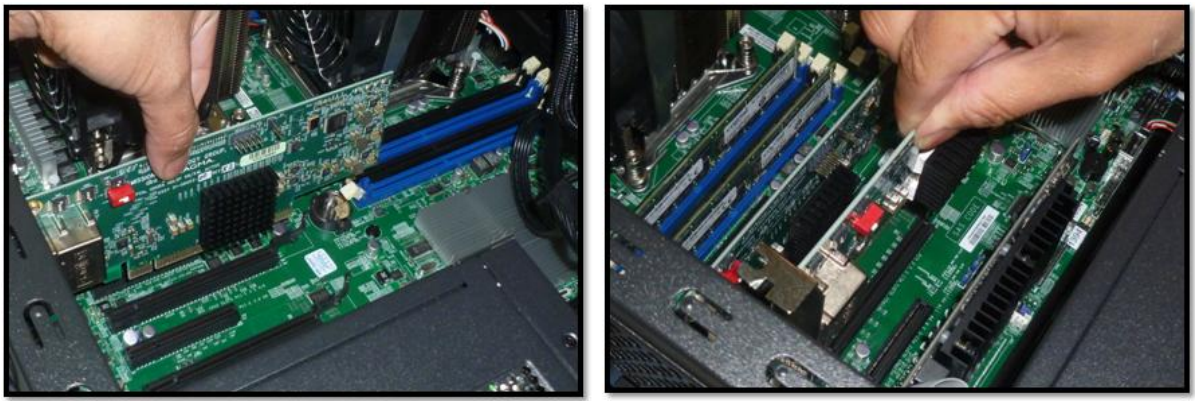
You must only install the Host Interface card into a PCI EXPRESS SLOT.

Only use Interface card WITH bracket. This will ensure that your PCIe host card can only be inserted into a PCIe slot. Although a Host Interface card without brackets may fit into conventional PCI slots, you run the risk of damaging the PCI Express host card if you insert it into a PCI slot.

1. Once the host computer is turned OFF and all power cords are disconnected from the AC outlet, remove the cover.
2. Check the red DIP switch (SW4) on the Interface card, make sure it is set to "OFF= HOST".



3. Insert the Host Interface card into a vacant x8 (or x16) PCIe slot by gently pushing the card until it is firmly seated. Then secure the card into the slot with a mounting screw.

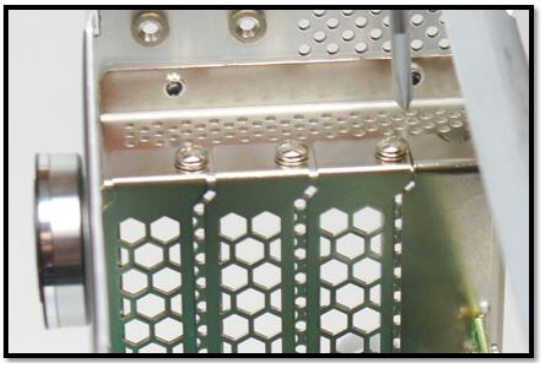


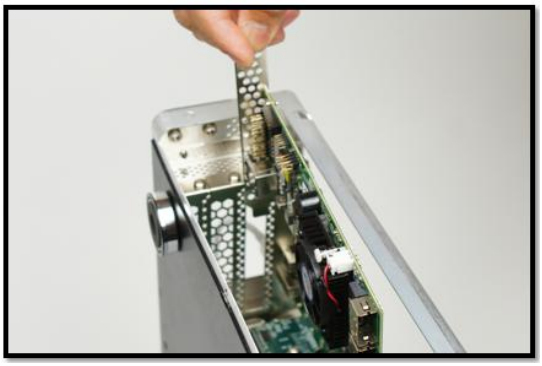
It is important to know how many lanes the host computer slot can support. The Host Interface card does not need to be configured for the same number of lanes as the host computer slot. The Host Interface Card will train down to whatever the PCIe slot speed is that it detects.

For example, if the Host Interface Card is installed in a X4 lane card slot; leave the Host Interface Card setting as is. The host computer dictates what link width and speed the expansion system will operate in.

Install PCIe Cards (STEP 4)

Remove slot covers and install PCIe cards.



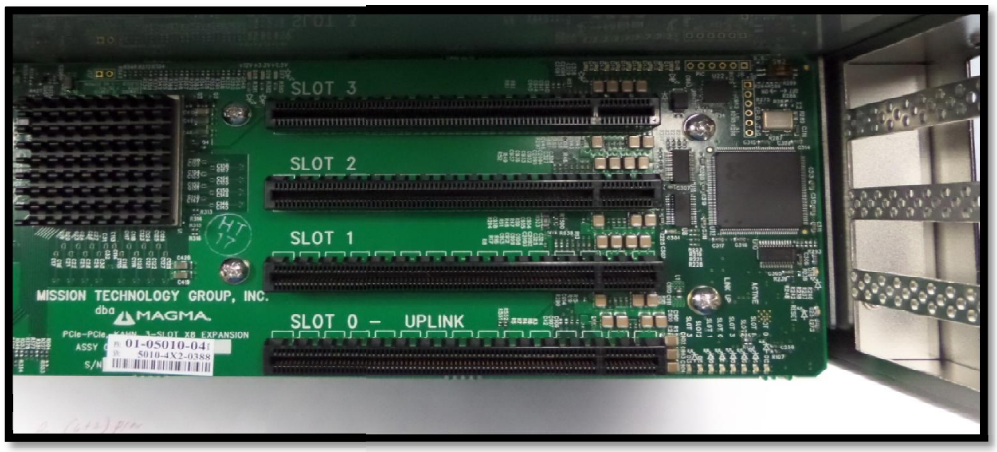


Make sure that all cards are fully seated in their PCIe card slots. When correctly seated, there will be a firm resistance when you pull up gently on the card. To keep the cards in place, secure them in the enclosure with their retaining screws. After securing the cards verify that they do not touch each other.

CAUTION
Cards that generate lots of heat should be installed in SLOT1.
And use SLOT3 for the card that produces less heat.

Some card manufacturers recommend that you install their software driver prior to installing the card. If this is the case, be sure to install the card driver before connecting EXPRESSBOX 3200to the computer.

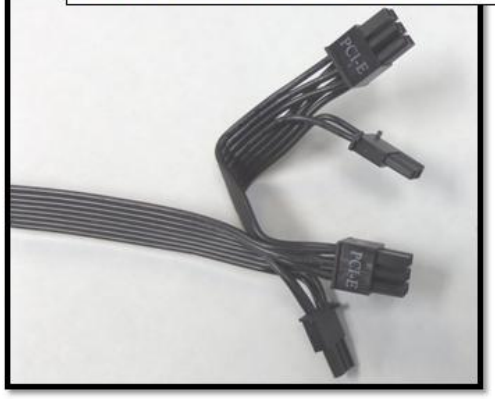
- Slot 3 accepts all types of PCIe cards x1, x2, x4, x8 or x16.
- Slot 2 accepts all types of PCIe cards x1, x2, x4, x8 or x16.
- Slot 1 accepts all types of PCIe cards x1, x2, x4, x8 or x16.



Aux Power Connectors

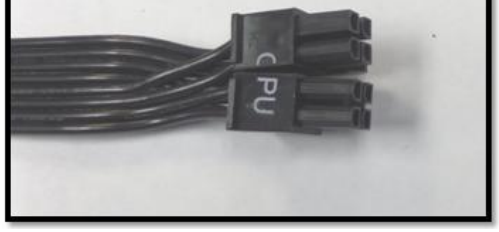
Some PCIe cards require extra power. The ExpressBox 3200 power supply provides the following power connectors / adapters (see pictures below). There are five 4-pin Molex AUX power connectors that can be used for providing extra power to cards. And two (6+2 pin) PCIe connectors for GPUs.

2 (6+2) PCIe Power Connectors



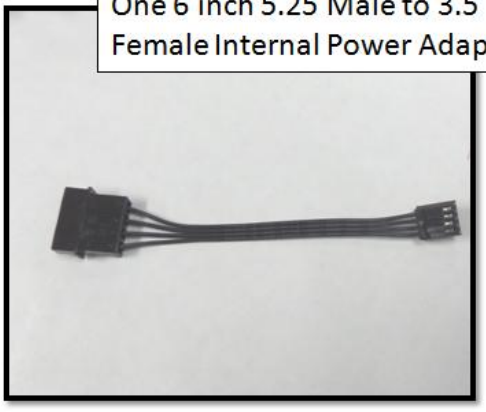
5 4pin Molex Power Connectors

1 8pin PCIe Power Connector



6 SATA Power Connectors

One 6 inch 5.25 Male to 3.5 Female Internal Power Adapter

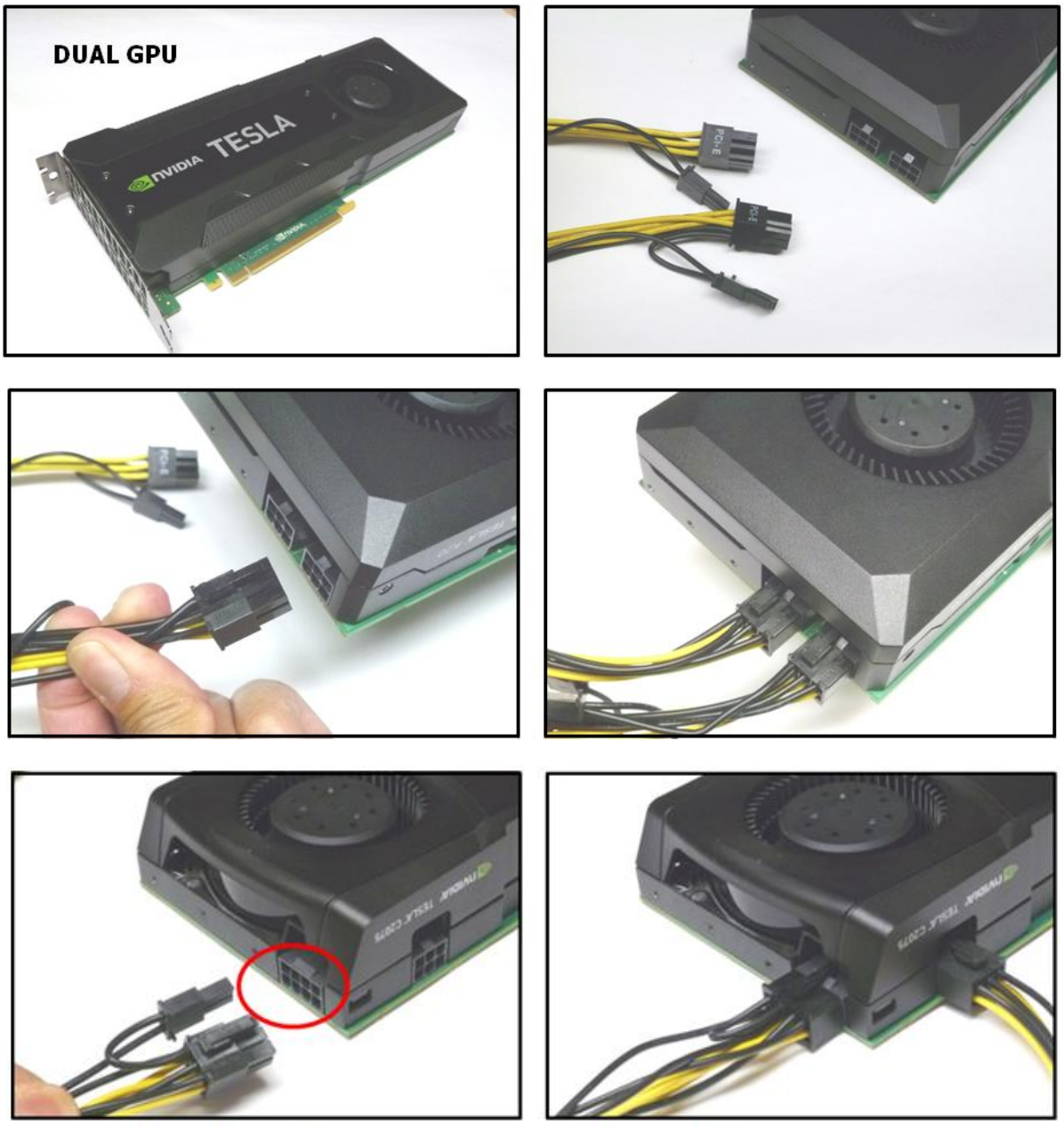


High Power PCIe card installation

High Power PCIe cards also known as High End PCIe cards such as GPUs and other similar type of card requires additional power (or AUX Power) to operate. High power PCIe cards or GPUs that requires auxiliary power should come with power adapter cables.

There are five 4-pin Molex AUX power connectors and two (6+2 pin) PCIe connectors from the power supply that can be used to provide power to your GPUs or High Power PCIe cards.

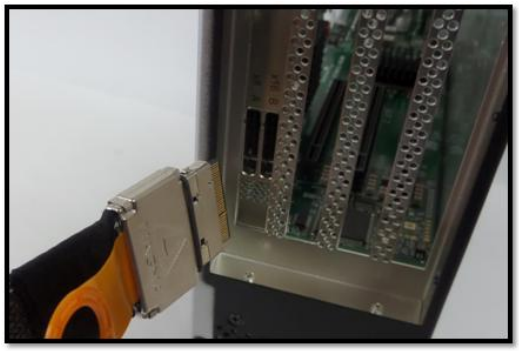
Other High power PCIe cards may use different Aux power adapter connectors. Use the correct power adapter for your PCIe cards.



Other GPUs or PCIe cards may require the use of 8 pin connectors.

Connect PCIe Cable (STEP 5)

Connect one end of the PCIe cable to the back of the Magma expansion unit, make sure to use the x8 port of the Expansion Interface card, see pictures below.

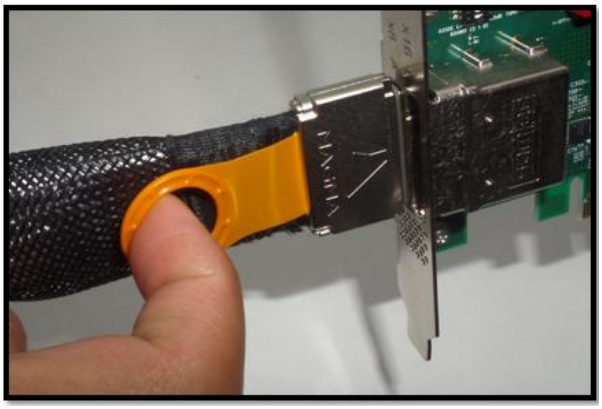


Connect the other end of the PCIe cable to host computer (x8 port), see pictures below.

Electrostatic Discharge (ESD) Warning
The PCIe cables are high performance communication cables and as such are sensitive to electrostatic discharge (ESD). Use appropriate anti-static precautions and packaging when handling the cables or when performing installation and/or maintenance

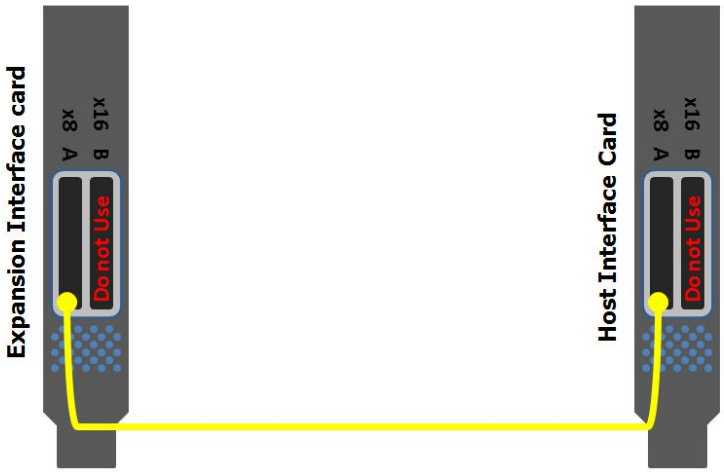
To Disconnect Cable

1. Pull the orange tab while slowly pulling out the cable from the interface card.
2. Failure to pull the orange tab while disconnecting the cable can break the connector inside the Interface card.



Cable Configuration

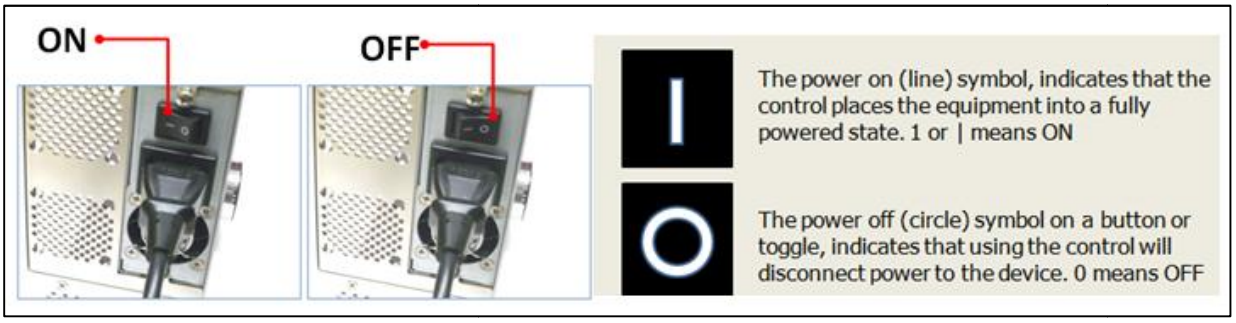
You can only connect the PCIe cable to the x8 port of the Interface card.
Note: Do not plug in the PCIe cable to x16 port, the expansion unit will not operate.



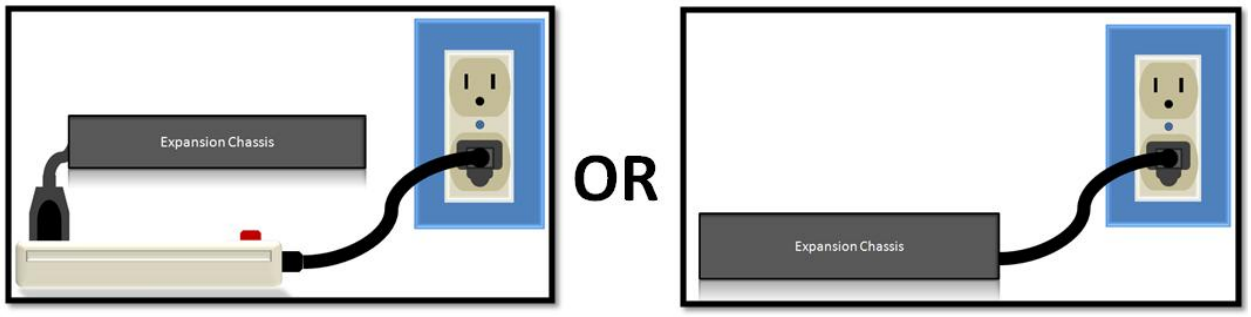
Attach Power Cord (STEP 6)

NOTE
If at all possible, plug the power cord from the expansion chassis and your host computer into a shared power strip, preferably one that has surge and noise suppression circuitry built into it.

1. Make sure the Power Switch is turned OFF first before connecting the power cord to ExpressBox 3200.
2. Turn power supply switch to ON position.


ON
OFF
The power on (line) symbol, indicates that the control places the equipment into a fully powered state. 1 or | means ON
The power off (circle) symbol on a button or toggle, indicates that using the control will disconnect power to the device. 0 means OFF

Connect to Electrical Outlet (STEP 7)



Be cautious, practice safe and correct methods when powering up your expansion unit. Before powering ON the system make sure all PCIe cards are seated properly into the card slots.

Turn ON Expansion Unit (STEP 8)

You don't need to press the front On/Off switch to turn the expansion unit ON. Proceed to next step "Power ON the computer".

Power ON the Computer (STEP 9)

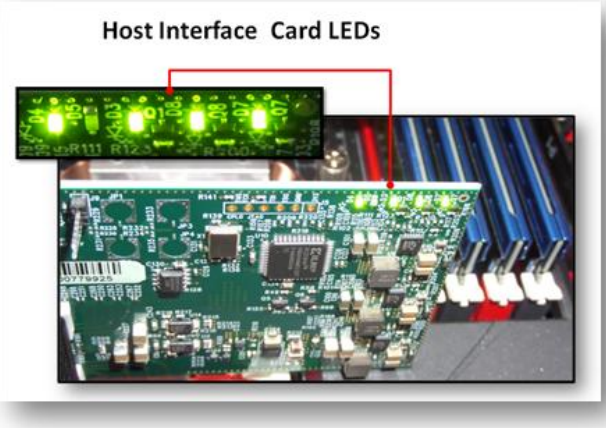
ExpressBox 3200 will automatically turn ON when the computer is turned ON. A white light located on the front panel will shine when the expansion chassis is ON. ExpressBox 3200 will automatically turn OFF when the computer is turned OFF.

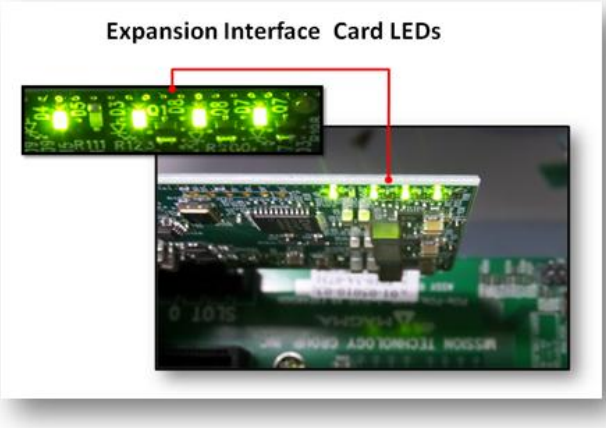
The white light on the front of ExpressBox 3200 is not an On-Off power-push button; it simply indicates whether the chassis is ON or OFF.

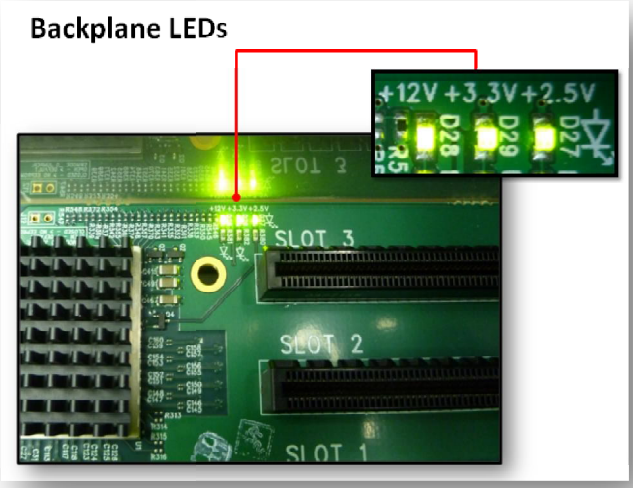
Hardware Check (STEP 10)

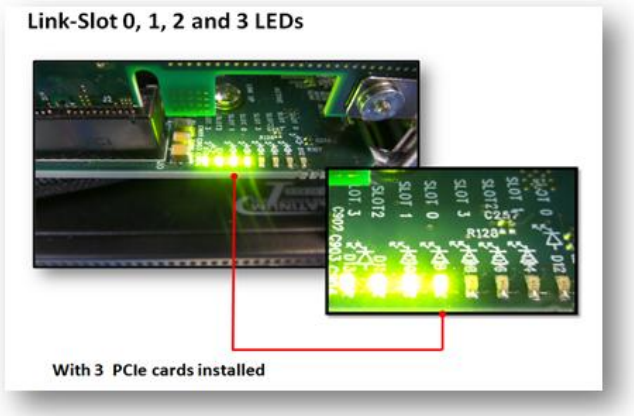
Once you have installed the Interface cards correctly and both computer and expansion chassis are running, the next step is to check the LED Link up status. Verify that the following LEDs on the Expansion and Host Interface cards are ON. Host and Expansion cards with a proper link established should show up with 4 solid green LEDs.

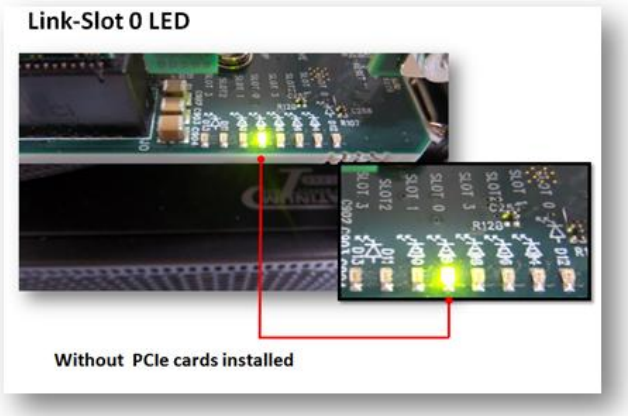
1. You should see the following LEDs are illuminated:
    a. Four green LEDs on the Expansion Interface card.
    b. Four green LEDs on the Host Interface Card.
    c. Three green LEDs on the backplane.
    d. One green LED on Link-Slot 0 (If there are no 3rd Party PCIe cards are installed in the slots). Or four green LEDs if all three PCIe slots are occupied with PCIe cards.











SLOT#	When LED is ON	When LED is Off
SLOT 0	There's a link between computer and expansion unit	No connection or link between computer and expansion unit
SLOT 1	When there is a PCIe card in the slot and it is being recognized by the PCIe switch (of the Expansion unit)	No PCIe card in the card slot
SLOT 2	When there is a PCIe card in the slot and it is being recognized by the PCIe switch (of the Expansion unit)	No PCIe card in the card slot
SLOT 3	When there is a PCIe card in the slot and it is being recognized by the PCIe switch (of the Expansion unit)	No PCIe card in the card slot

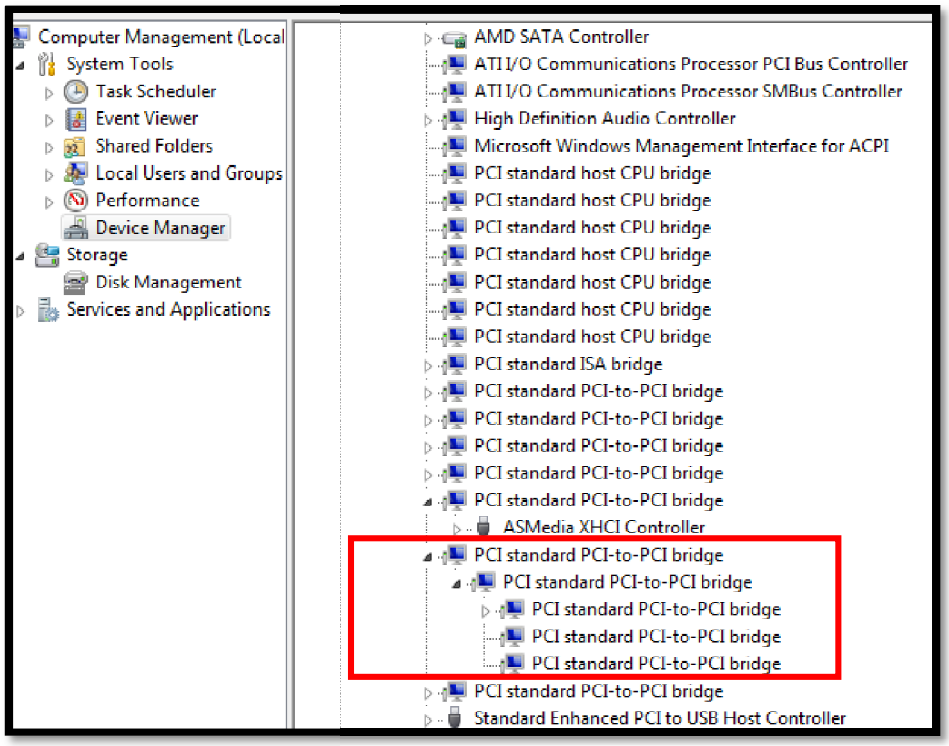
Chapter 1-B Software Installation

IMPORTANT
Magma requires no driver for Windows, Mac OS, Linux and other Operating Systems.

Software Check - Verify Installation (STEP 11)

Check Magma Device - Windows 7 and 8

Open ACPI (BIOS) **à** Open PCI Bus **à** Click the '+' sign several times until your reach a PCI Express Root Port or PCI Standard PCI-to-PCI Bridge with a PCI Standard PCI-to-PCI Bridge beneath it. If the verification is successful, you can install 3rd Party cards as well as auxiliary peripherals, such as hard drives into the chassis. If, however, the installation was unsuccessful, you may not see the PCI to PCI Bridge, or it will have a small yellow symbol in front of it as shown below.

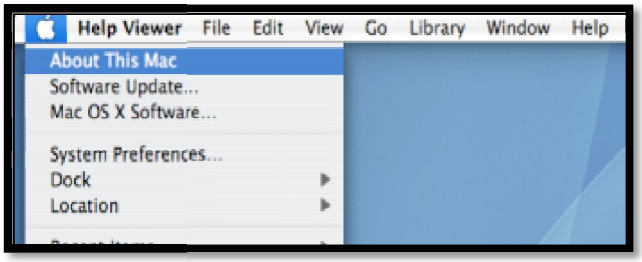


The first instance of PCI standard PCI-to-PCI Bridge is the Host Interface card device.
The second PCI standard PCI-to-PCI Bridge is the Expansion Interface card device.
Beneath the second PCI standard PCI-to-PCI Bridge are three instances of PCI standard PCI-to-PCI Bridges, these are the three PCIe slots.

Check Magma device - Mac OS X

IMPORTANT
Magma requires no driver for Mac OS.

To verify a successful installation of Magma ExpressBox 3200 on Mac select "About This Mac" under the Apple Icon.



1. Your first step will vary depending on which version of Mac OS X you are using:

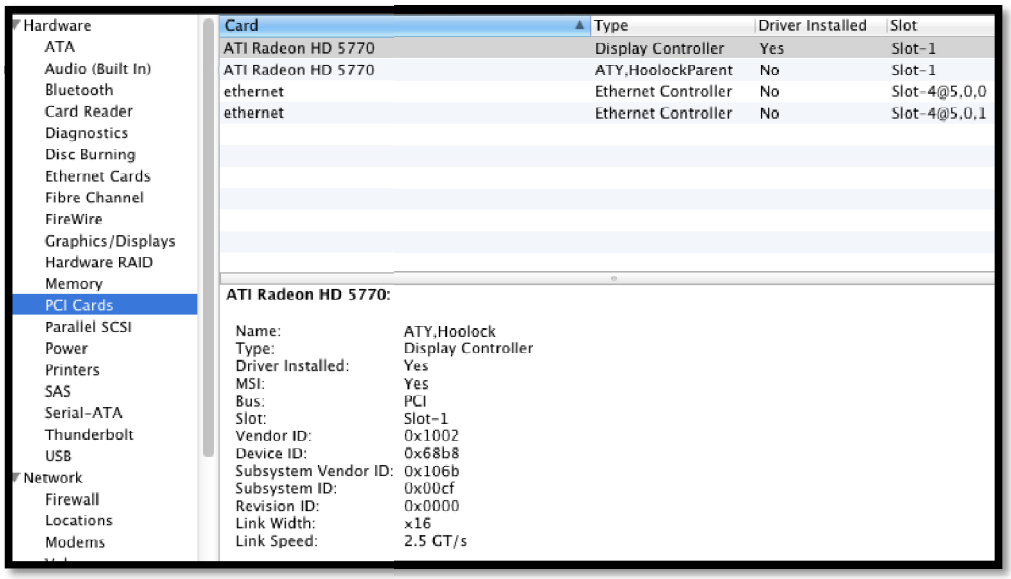
Mac OS X 10.6.8 Snow Leopard or earlier:

- Open Apple System Profiler by choosing about this Mac from the Apple ( ) menu. Then, click More Info.

OS X Lion 10.7 or later:

- Open System Information by choosing About this Mac from the Apple ( ) menu. Then, click System Report

2. Click PCI Cards. You should see the PCIe cards installed in the Magma expansion chassis.
3. Magma devices are transparent to the Operating System. It will only show the cards installed in the expansion chassis.



Check Magma device – Linux

Once the ExpressBox 3200 expansion unit has been installed in a Linux-based system, its installation can be verified by typing the following command lines:

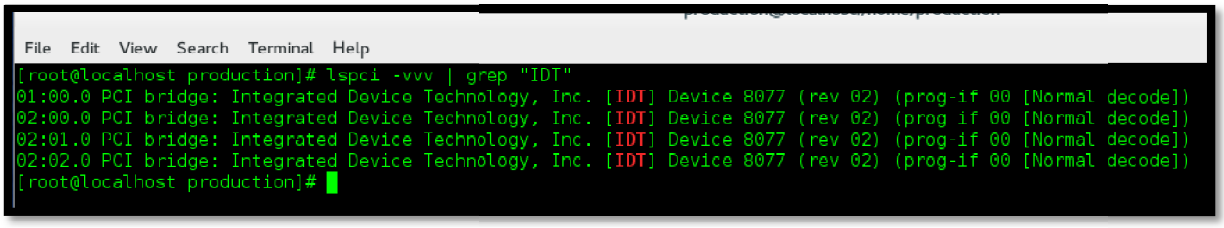
lspci –t Displays the overall structure of the PCIe expansion system

lspci –vv Lists additional information about the PCIe switch (in our case it will list the Integrated Device Technology (IDT) information.

lspci –vvv Displays the most comprehensive information about the expansion system.

Typical output from lspci –vvv is verbose, but you can dig through the information to find very important information. There are many registers and settings associated with PCI Express Switches.

Use the "lspci | grep "IDT" command to check that the Magma card slot devices are detected (see image below).


File Edit View Search Terminal Help
[root@localhost production]# lspci -vvv | grep "IDT"
01:00.0 PCI bridge: Integrated Device Technology, Inc. [IDT] Device 8077 (rev 02) (prog-if 00 [Normal decode])
02:00.0 PCI bridge: Integrated Device Technology, Inc. [IDT] Device 8077 (rev 02) (prog-if 00 [Normal decode])
02:01.0 PCI bridge: Integrated Device Technology, Inc. [IDT] Device 8077 (rev 02) (prog-if 00 [Normal decode])
02:02.0 PCI bridge: Integrated Device Technology, Inc. [IDT] Device 8077 (rev 02) (prog-if 00 [Normal decode])
[root@localhost production]#

How To Check PCIe cards - Mac OS X

1. Your first step will vary depending on which version of Mac OS X you are using:

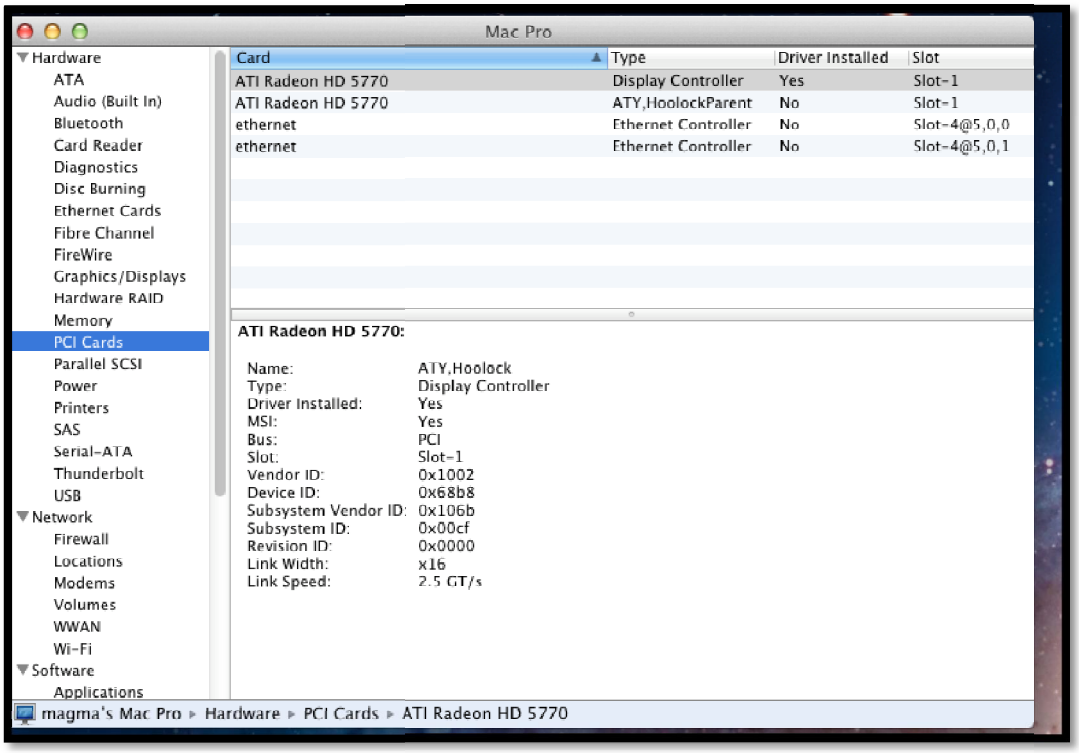
Mac OS X 10.6.8 Snow Leopard or earlier:

- Open Apple System Profiler by choosing About this Mac from the Apple ( ) menu. Then, click More Info.

OS X Lion 10.7 or later:

- Open System Information by choosing About this Mac from the Apple ( ) menu. Then, click System Report

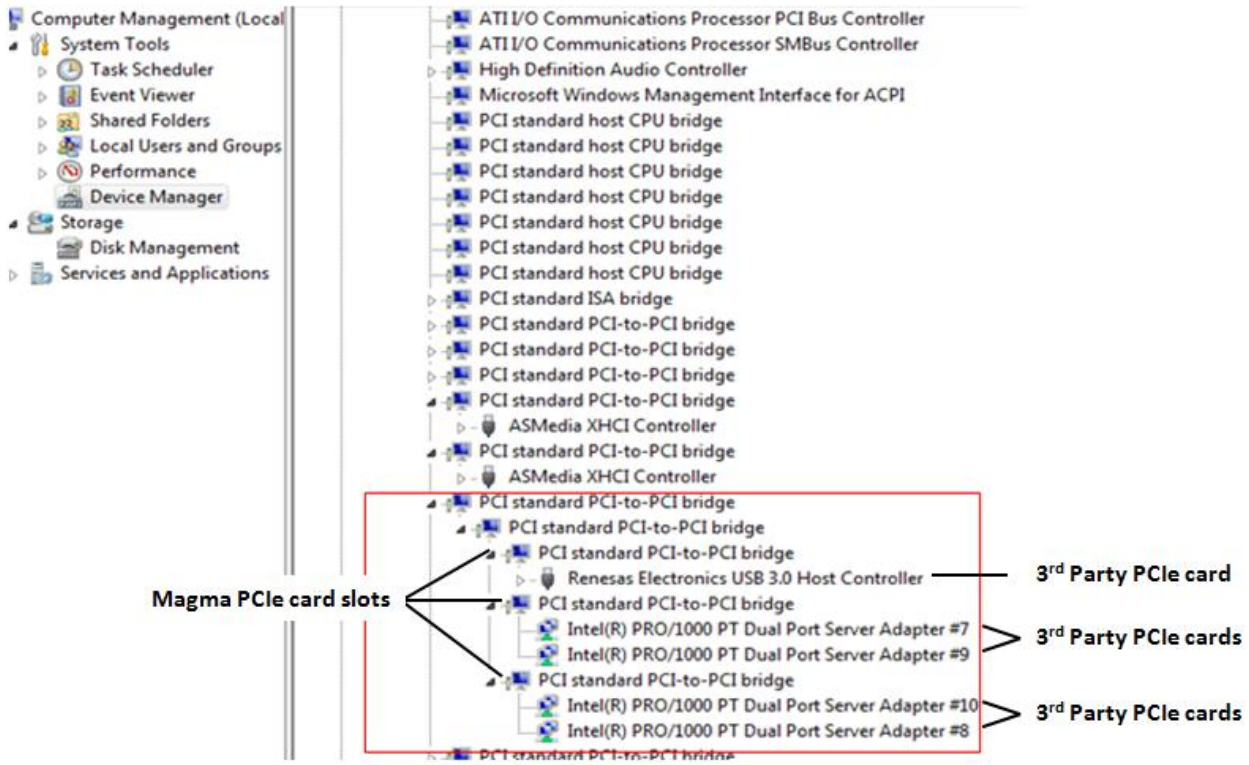
2. Click PCI cards



How To Check PCIe cards - Windows 7 and 8

No special drivers have been required for Magma Expansion and Host Interface card with Windows 7. However, you would need drivers for any 3rd Party PCIe cards that you install into the expansion unit. Drivers for 3rd Party PCIe cards can be obtained from the vendor or manufacturer of the PCIe cards. Magma does not provide nor supply 3rd Party drivers.

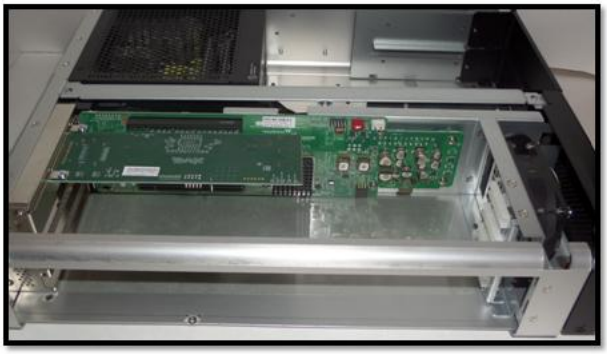
The picture below shows three 3rd Party PCIe cards appearing beneath each PCI standard PCI-to-PCI Bridge. All 3rd Party PCIe cards are recognized / detected without any error (yellow exclamation point).


Computer Management (Local
System Tools
Task Scheduler
Event Viewer
Shared Folders
Local Users and Groups
Performance
Device Manager
Storage
Disk Management
Services and Applications
ATI I/O Communications Processor PCI Bus Controller
ATI I/O Communications Processor SMBus Controller
High Definition Audio Controller
Microsoft Windows Management Interface for ACPI
PCI standard host CPU bridge
PCI standard host CPU bridge
PCI standard host CPU bridge
PCI standard host CPU bridge
PCI standard host CPU bridge
PCI standard host CPU bridge
PCI standard host CPU bridge
PCI standard ISA bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
ASMedia XHCI Controller
PCI standard PCI-to-PCI bridge
ASMedia XHCI Controller
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
Renesas Electronics USB 3.0 Host Controller
PCI standard PCI-to-PCI bridge
Intel(R) PRO/1000 PT Dual Port Server Adapter #7
Intel(R) PRO/1000 PT Dual Port Server Adapter #9
PCI standard PCI-to-PCI bridge
Intel(R) PRO/1000 PT Dual Port Server Adapter #10
Intel(R) PRO/1000 PT Dual Port Server Adapter #8
Magma PCIe card slots
3rd Party PCIe card
3rd Party PCIe cards
3rd Party PCIe cards

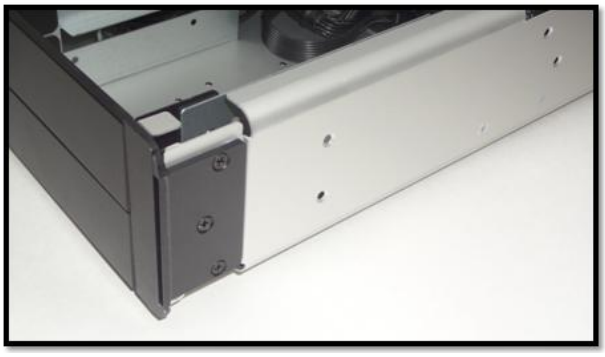
Chapter 1-C 5.25” Mounting Drive Bay Removal

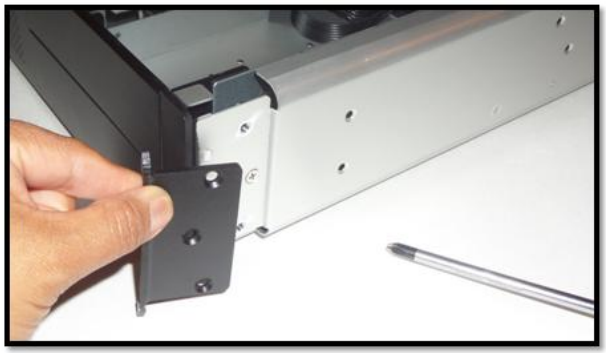
1. Shutdown the computer
2. Disconnect the Cable from the Expansion unit.
3. Remove top cover.
4. Remove 5.25” Mounting Drive Bay (follow steps below)
5. Install Controller Card (see page 31)
6. Install Top Cover
7. Connect Cable
8. Plug-in Power Cord
9. Attach Power Cord
10. Connect to Electrical Outlet
11. Power on Computer, ExpressBox3200 turns on automatically
12. Hardware Check
13. Verify Installation (via Operating System)
14. Install Driver for Controller card. Obtain the Software / driver from the manufacturer of the card (if needed)
15. Configure Disk Drives (if needed)

Remove Metal Bar

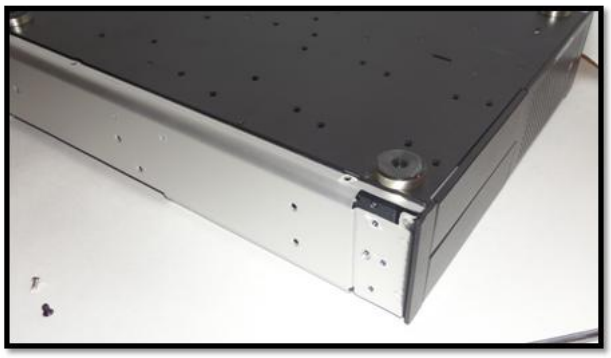


Remove left side ear of the expansion unit

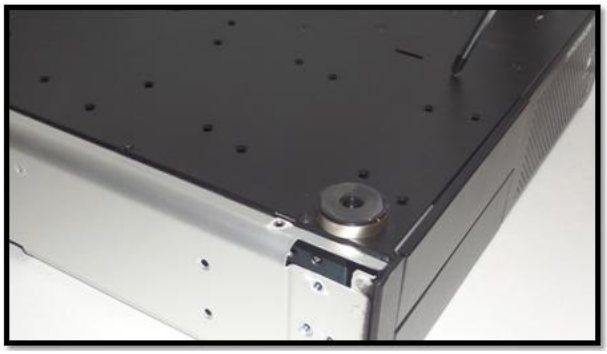


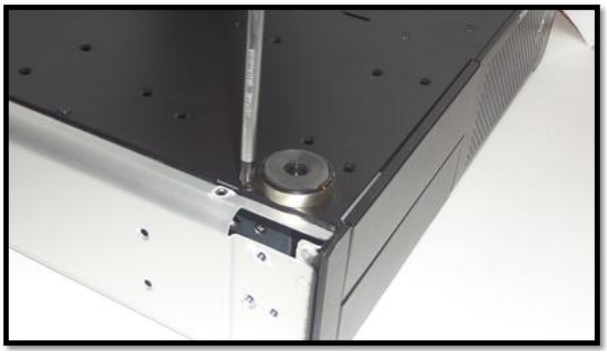


Turn over the expansion unit after removing the left-side ear

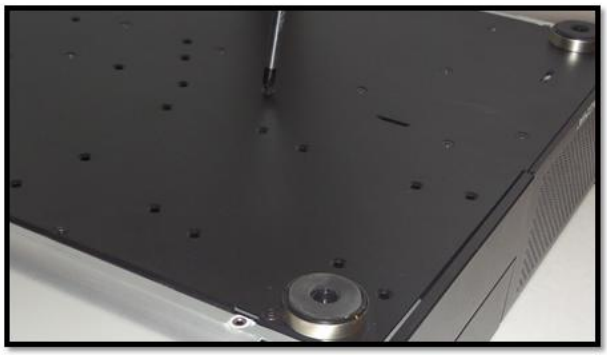


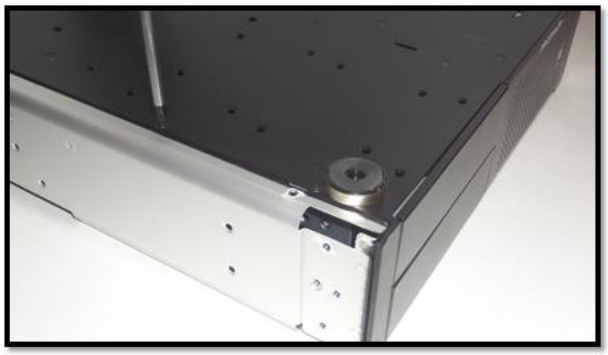
Remove screws, see pictures below



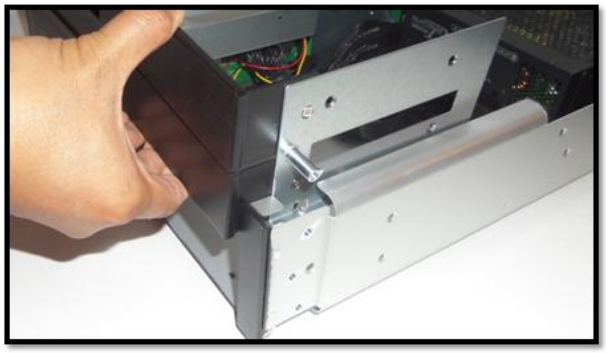


Remove screws, see pictures below

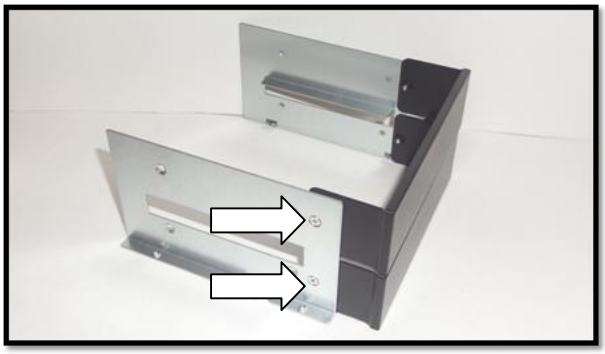


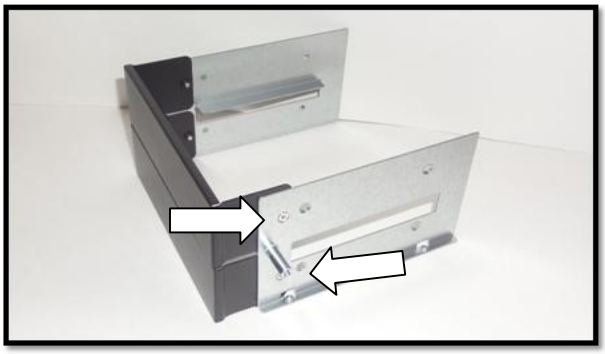


Lift the drive carrier / mounting bay

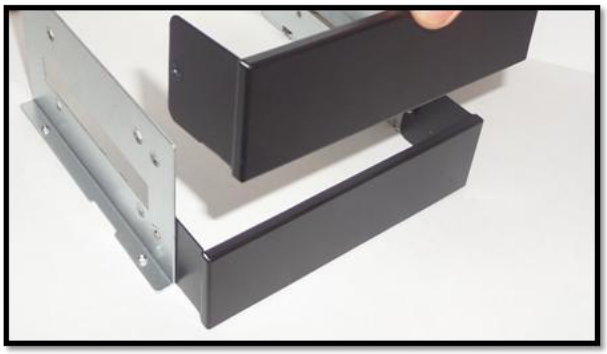


Remove screws





Remove front plate cover



Once you have removed the front plate cover you can now install the 5.25” drive

Chapter 2 ExpressBox 3200-S8 Expansion

The ExpressBox 3200-S8 is precision engineered for reliability and performance. Featuring a high speed PCIe cable, three (3) full-length, full-height PCIe slots and eight (8) 2.5-inch SATA/SAS HDD or SSD drive bays.

The ExpressBox 3200-S8 rack-mountable aluminum chassis was designed for integrated removable storage expansion, a 520-watt fanless power supply, auxiliary power, and features two (2) 40mm 6.37 CFM Bay Fans.

The ExpressBox 3200-S8 Expansion is compatible with a series of operating systems, including MacOS, Windows, Linux, and Solaris.

- Three (3) available full length/full height expansion slots
- Tool-less cover removal
- White power-on indicator front panel light
- One 80mm 33.4 CFM Expansion Card/Backplane Fan
- Variable speed thermistor control option (or full speed)
- Speeds up to 8GT/s (PCIe x8 Gen 2)
- Connect PCI Express Host to Expansion over cable
- Use same PCIe interface card for both sides of the connection
- High Speed IO cable

Product Name	Description
ExpressBox 3200-S8	3 Slot – Storage

Use Magma's PCI Express Expansion to create a super-fast PCIe connection outside the computer
The ExpressBox 3200-S8 is the perfect solution for creating a super-fast local PCIe connection from a host computer to a target PCI Express device. The Magma 01-08003-00 Interface card installs into any x8 or x16 PCIe slot in the host computer motherboard and the other Magma 01-08003-00 Interface card is inserted into a designated upstream PCIe slot. A high-speed IO cable allows data transfer to and from the host computer at 64 Gbps (8 Gb/s per lane multiply by 8 lanes).

Features:

- High-speed x8 PCI Express connection
- Easy Plug and Play installation
- Low profile bracket provides for easy installation in low profile computers
- Easily visible LEDs that indicate correct installation and PCIe link width
- Low power consumption - less than 4 Watts
- LEDs show status of connection for quick debug- reset indicator, clock indicator, link width indicator
- Supports Spread Spectrum Clocking, LOS (Loss of Signal), LOL (Loss of Lock Indicator)
- Low Latency and Low Jitter
- Fanless 520 Watt Power Supply
- Auxiliary Power Cable

Benefits:

- Attach PCIe Cards to any Computers
- Extension of PCI Express signal outside the computer
- Daisy-chain or end-point device
- Transparent extension of PCI Express signals outside the computer
- No software required - connection is automatically recognized and configured by system BIOS
- Attach large power hungry PCI Express cards to computer with limited card space
- Low latency PCIe connection between host and target without using bridges or switches
- Same PCIe card used for both the host and expansion device
- Interface Card can be used with any PCIe compliant expansion chassis - Magma
- Automated x1, x4 and x8 link negotiation for PCI Express Gen1, Gen2 and Gen 3
- Ability to override automatic PCIe link training through dip-switch settings

ExpressBox 3200-S8 PCI Express Specifications

Item	Description
Technology	PCI Express Bus Specification Revision 2.0 PCI Local Bus Specification Revision 2.3 PCI Bridge Architecture Revision 1.2
Backplane	(3) available full length/full height expansion slots, X8 PCIe Gen 2.0 Electrical - x8 PCIe Physical – x16 PCIe
PCIe Link Cards	Form Factor: X8 PCIE, low Profile, half length LED Indicators: PCIe Link width, reset clock
Interconnect Bandwidth	PCIe Gen 3 x16: 8GT/s to all peripherals and host link
Physical Characteristics	Length 139.7mm (5.5 inches) Width 12.7mm (0.5 inches) Height 69.9mm (2.75 inches)
Cable	1-meter PCIe Gen 3 cable
Enclosure	2U Aluminum Desktop – Black 14.25” Wide x 3.48” High x 17” Deep (363mm x 88.4mm x 432mm) 8.5 lbs or 3.6Kg Tool-less cover removal White power-on indicator front panel light
System Cooling	One 80mm 49.5 CFM Expansion Cards/Backplane Fan Variable speed thermistor control option (or full speed)
Power Supply Options	520 W fanless, 100-240V, 50-60Hz Power Input Four 4-pin Molex Connector Two 6-pin + PCIe connector Input Frequency: 50-60Hz DC Output: 540 Watts Max

	+12V 43A -12V .5A +5V 20A +3.3V 20A +5Vsb 2.5A Total of +3.3V and 5V must not exceed 100W
Environmental	Ambient Temperature 0° to 50° C Storage Temperature -40° to 125° C Relative Humidity 5% to 85% non-condensing
MTBF	35k hours
Regulatory Compliance	FCC Class A Verified CE RoHS Compliant
Supported Operating Systems	MacOS 10.6.8 or higher, Windows 7 and Windows 8, Linux and Solaris
Warranty	30 day money back guarantee. 1 Year Return to factory

Pre-Installation Information

Before using the Magma Expansion chassis you should perform the following steps:

- Inventory the shipping carton contents for all of the required parts
- Gather all of the necessary tools required for installation
- Read this manual

Part List

ITEM#	DESCRIPTION	QTY
1	Host Interface card	1
2	3-meter High Speed / HD IO cable	1
3	Power Cord	1
4	Expansion Interface Card (Installed)	1
4	QSG (Quick Start Guide)	1
5	Rackmount Kit (Optional). For ExpressBox 3200-S8 Rackmount model	1 set

ExpressBox 3200-S8 (3 Slot Storage – Gen3)

Disk Drives are not included.
NOTE: A controller card with 2 or 4 internal ports is required when installing disk drives with this product. The Controller Card is NOT included (it is sold separately).

This model cannot be connected to a laptop. It uses a high speed PCIe cable that plugs into a Host Interface card which is installed in a PCIe slot of a motherboard Host Computer (Desktop, PC, Workstation, Sever, and similar form factors).

Components of ExpressBox 3200-S8

Once you've completed your inventory, your next step is to get familiarized with components of the Magma ExpressBox 3200-S8 expansion unit.

The expansion unit is composed of the following integral components

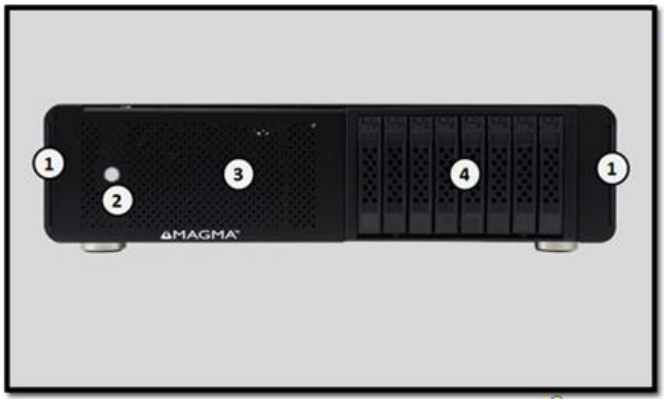
6. Expansion Backplane
    a. 3 PCIe slots (x8 electrical and x16 mechanical)
    b. One designated Link-Up slot for Interface card
    c. Slot LEDs, Link and Activity LEDs
    d. Thermistor control switch
7. Interface card
    a. Expansion and Host mode DIP switch
    b. Speed Toggle switches
    c. One Cable port (x8)
8. Power Supply, fanless
    a. Power cord socket
    b. On/Off Switch
    c. PCIe Aux power cable connectors
9. Fan
    a. 33.4 CFM
    b. Locking Thumb screw
    c. Air Flow: from outside going inside
10. Storage Bay
    a. Eight (8) 2.5-inch SATA/SAS HDD or SSD drive bays

Front panel:

4. Front Panel Status LED
5. Front Air Ventilation cover
6. Eight (8) 2.5-inch SATA/SAS HDD or SSD drive bays

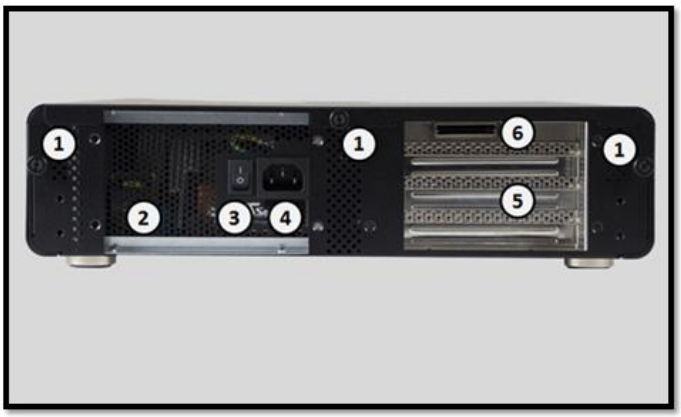
Rear Panel,

7. PCI Express card slot opening
8. Interface card cable ports
9. Power Supply (Power Cord & On/Off Switch)
10. Top cover Thumb Screws
11. IO Cable Port
12. Serial number



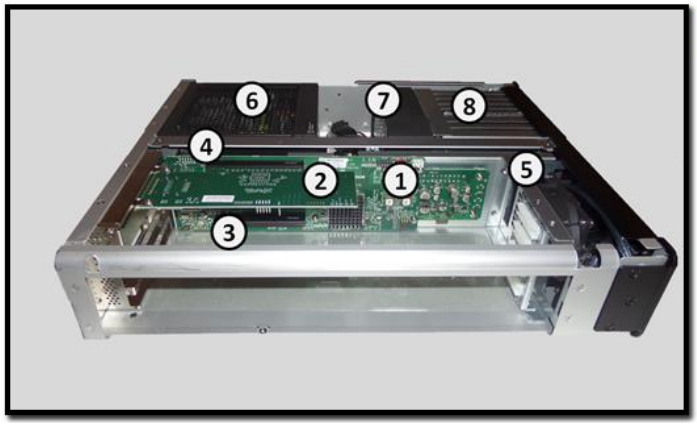
Item#	Description
1	Front Led
2	Air Ventilation
3	Storage Bay
4	Rack Ears Mounting Section

FRONT VIEW



Item#	Description
1	Thumb Screws
2	Fanless Power Supply
3	PSU On/Off Switch
4	Power Cord Socket
5	Card Slot Opening
6	Ipass Cable Port

REAR VIEW



Item#	Description
1	Expansion Backplane
2	Interface Card
3	PCIe Card Slot
4	Interface Card Slot
5	Front Fan
6	Fanless Power Supply
7	Storage Power Supplies
8	Drive Mounting Bay

TOP VIEW

Tools Required for Installation

To complete the installation of the Magma product you will need a Phillips-head screwdriver and ESD wrist strap to prevent electrostatic discharge.

Chapter 2-A Hardware Installation

The following steps will guide you through the installation of your Magma Expansion System.

CAUTION
Hardware installation shall be performed only by qualified service personnel.

Electrostatic Discharge (ESD) Warning
All add-in cards are susceptible to electrostatic discharge. When moving cards, it is best to carry the cards in anti-static packaging. If you need to set a circuit card down, be sure to place it inside or on top of an anti-static surface. For more information, see "Protecting Against Electrostatic Discharge" in the Preface.

WARNING
High voltages are present inside the expansion chassis when the unit's power cord is plugged into an electrical outlet. Disconnect the power cord from the AC outlet before removing the enclosure cover. Turning the system power off at the power on/off switch does not remove power to components. High voltage is still present.

CAUTION
Before touching anything inside the enclosure, move to an ESD station and follow proper ESD procedures. Failure to do so may result in electrostatic discharge, damaging the computer or its components. For more information, see "Protecting Against Electrostatic Discharge" in the Preface.

Installation-Procedures Overview

Below is the concise version on how to set up the ExpressBox 3200-S8.

11. Open Enclosure
12. Install Expansion Interface card(s) (If not installed)
13. Install Host Interface card(s) into host computer
14. Connect Cable.
15. Install PCIe cards (see notes below)
16. Attach Power Cord
17. Connect to Electrical Outlet
18. Power on Computer
19. Hardware Check
20. Verify Installation (via Operating System)

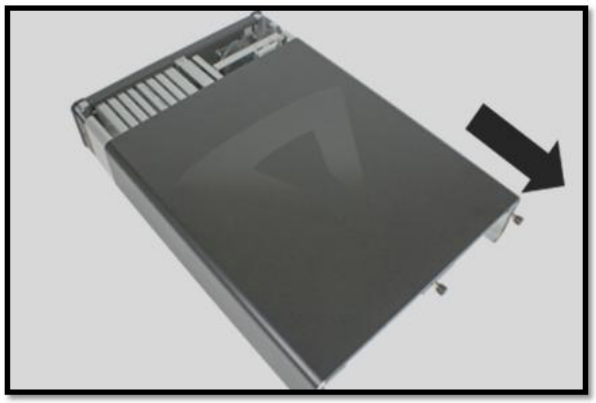
NOTE
It is highly recommended to install any 3rd party PCI-E cards / High Power PCIe cards after you have verified and tested that the Magma expansion chassis is functional and free of hardware failures.

When installing 3rd Party PCIe cards, start with one card first just to see if there are any software and / or hardware issues or incompatibility problems that may occur. This way you can troubleshoot the problem more easily and efficiently. If everything works well and there are no configuration issues, you can proceed with the installation of the remaining 3rd party PCIe cards.

Always refer to or read "3rd party manufacturer installation guide" for further instructions.

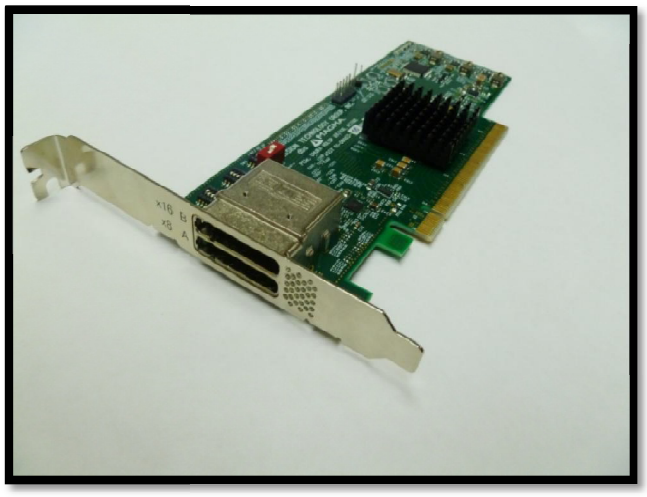
Open Enclosure (STEP 1)

Loosen the thumbscrews that retain the top cover of the chassis and slide the lid towards you as shown from the pictures below:



Install Expansion Interface card (STEP 2)

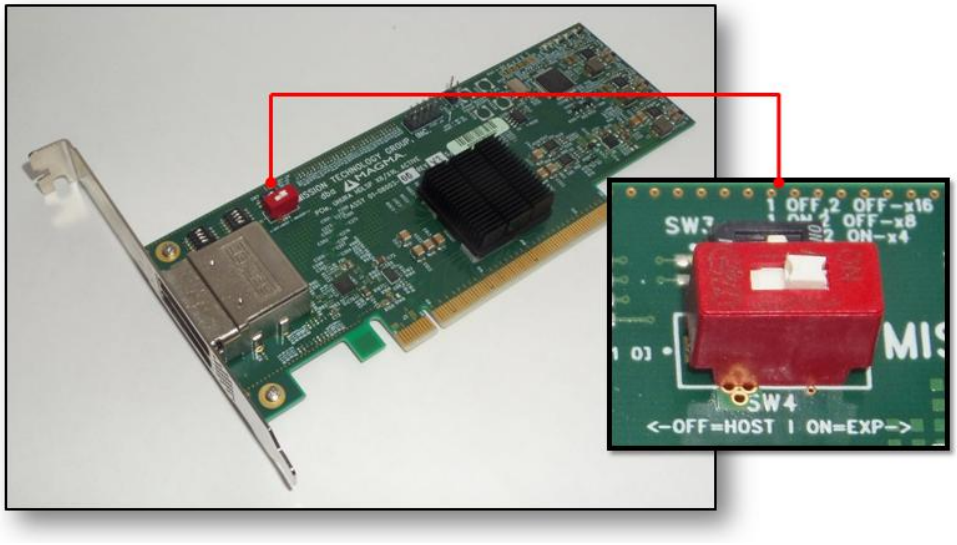
By default the Expansion Interface card is already installed. No need to install the Expansion Interface card.



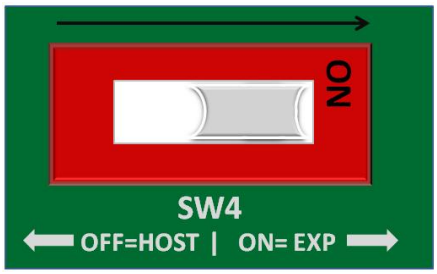
If you need to replace the Expansion Interface card or install a new Expansion Interface card follow these steps below:

5. Turn off the Expansion chassis first. Disconnect the power cord.
6. Unscrew the Expansion Interface card.
7. Install the new Expansion Interface card.
8. Plug-in the Expansion Interface card into PCIe slot#0. This is the designated slot for the Interface card. Installing the Interface card into a non-designated slot can cause the system to malfunction.

NOTE
Host Interface card (HIF), is the same exact card as the Expansion Interface card (EIF). The SW4 switch on the Expansion Interface card is set to "ON=EXP." The expansion system will NOT function if SW4 is set to OFF=HOST. See picture below for SW4 dip switch setting.

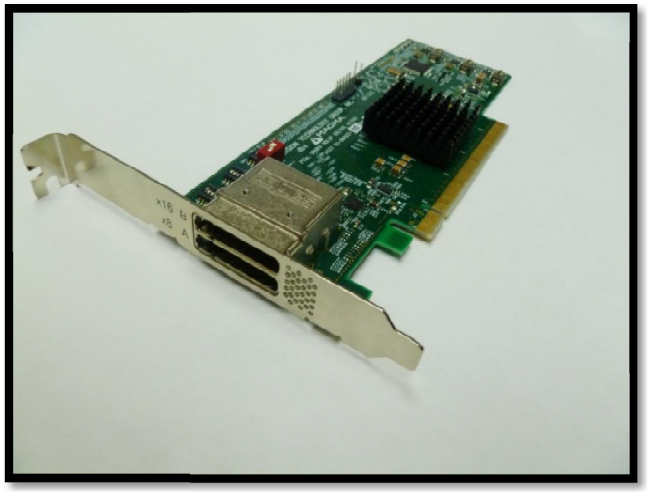


Make sure to check that the dip switch (SW4) is set to proper configuration. The toggle switch should be set to "ON=EXP" position, see picture below.



Install Host Interface card (STEP 3)

Begin the installation of your Host Interface card by first powering down your computer.
The Host Interface card is a "half-height," x8-capable PCIe card mounted to a "full-height" bracket, see picture below.



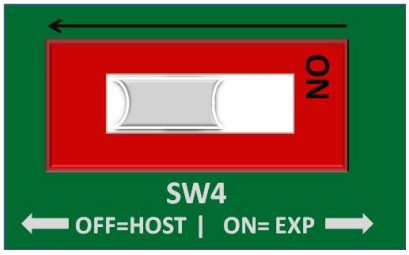
For low profile case applications, you may need to change the mounting bracket to the low profile bracket that shipped with your system, see picture below. This is done by removing the screws that hold the card to the bracket. Be sure you are using proper ESD procedures when completing this action.

WARNING

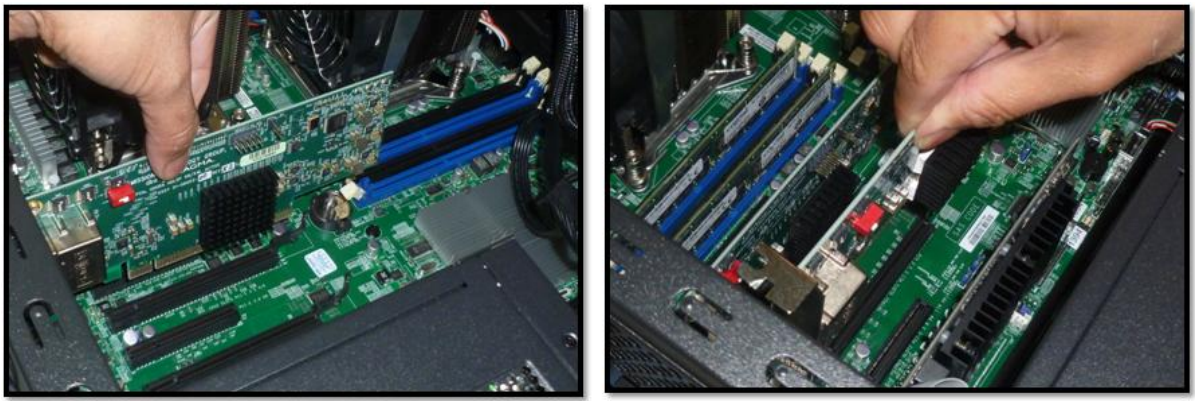
You must only install the Host Interface card into a PCI EXPRESS SLOT.

Only use Interface card WITH bracket. This will ensure that your PCIe host card can only be inserted into a PCIe slot. Although a Host Interface card without brackets may fit into conventional PCI slots, you run the risk of damaging the PCI Express host card if you insert it into a PCI slot.

4. Once the host computer is turned OFF and all power cords are disconnected from the AC outlet, remove the cover.
5. Check the red DIP switch (SW4) on the Interface card, make sure it is set to "OFF= HOST".



6. Insert the Host Interface card into a vacant x8 (or x16) PCIe slot by gently pushing the card until it is firmly seated. Then secure the card into the slot with a mounting screw.

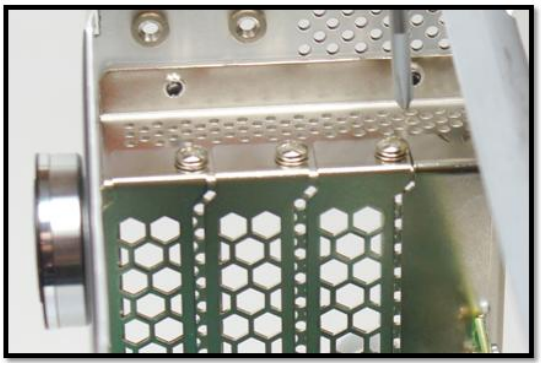


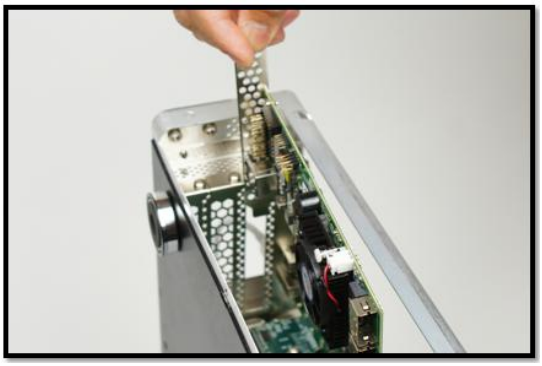
It is important to know how many lanes the host computer slot can support. The Host Interface card does not need to be configured for the same number of lanes as the host computer slot. The Host Interface Card will train down to whatever the PCIe slot speed is that it detects.

For example, if the Host Interface Card is installed in a X4 lane card slot; leave the Host Interface Card setting as is. The host computer dictates what link width and speed the expansion system will operate in.

Install PCIe Cards (STEP 4)

Remove slot covers and install PCIe cards.



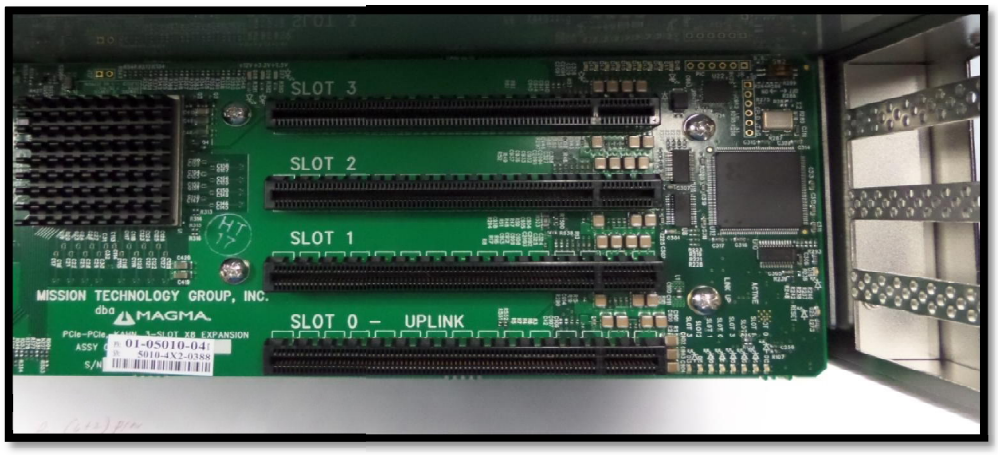


Make sure that all cards are fully seated in their PCIe card slots. When correctly seated, there will be a firm resistance when you pull up gently on the card. To keep the cards in place, secure them in the enclosure with their retaining screws. After securing the cards verify that they do not touch each other.

CAUTION
Cards that generate lots of heat should be installed in SLOT1.
And use SLOT3 for the card that produces less heat.

Some card manufacturers recommend that you install their software driver prior to installing the card. If this is the case, be sure to install the card driver before connecting EXPRESSBOX 3200-S8to the computer.

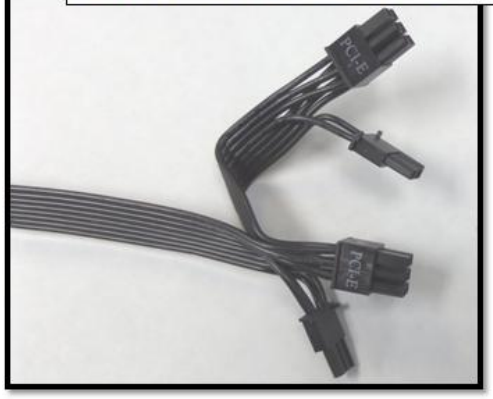
- Slot 3 accepts all types of PCIe cards x1, x2, x4, x8 or x16.
- Slot 2 accepts all types of PCIe cards x1, x2, x4, x8 or x16.
- Slot 1 accepts all types of PCIe cards x1, x2, x4, x8 or x16.



Aux Power Connectors

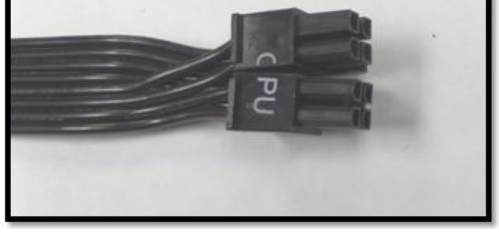
Some PCIe cards require extra power. The ExpressBox 3200-S8 power supply provides the following power connectors / adapters (see pictures below). There are five 4-pin Molex AUX power connectors that can be used for providing extra power to cards. And two (6+2 pin) PCIe connectors for GPUs.

2 (6+2) PCIe Power Connectors



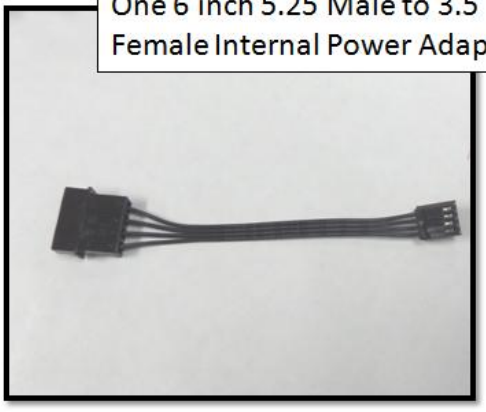
5 4pin Molex Power Connectors

1 8pin PCIe Power Connector



6 SATA Power Connectors

One 6 inch 5.25 Male to 3.5 Female Internal Power Adapter

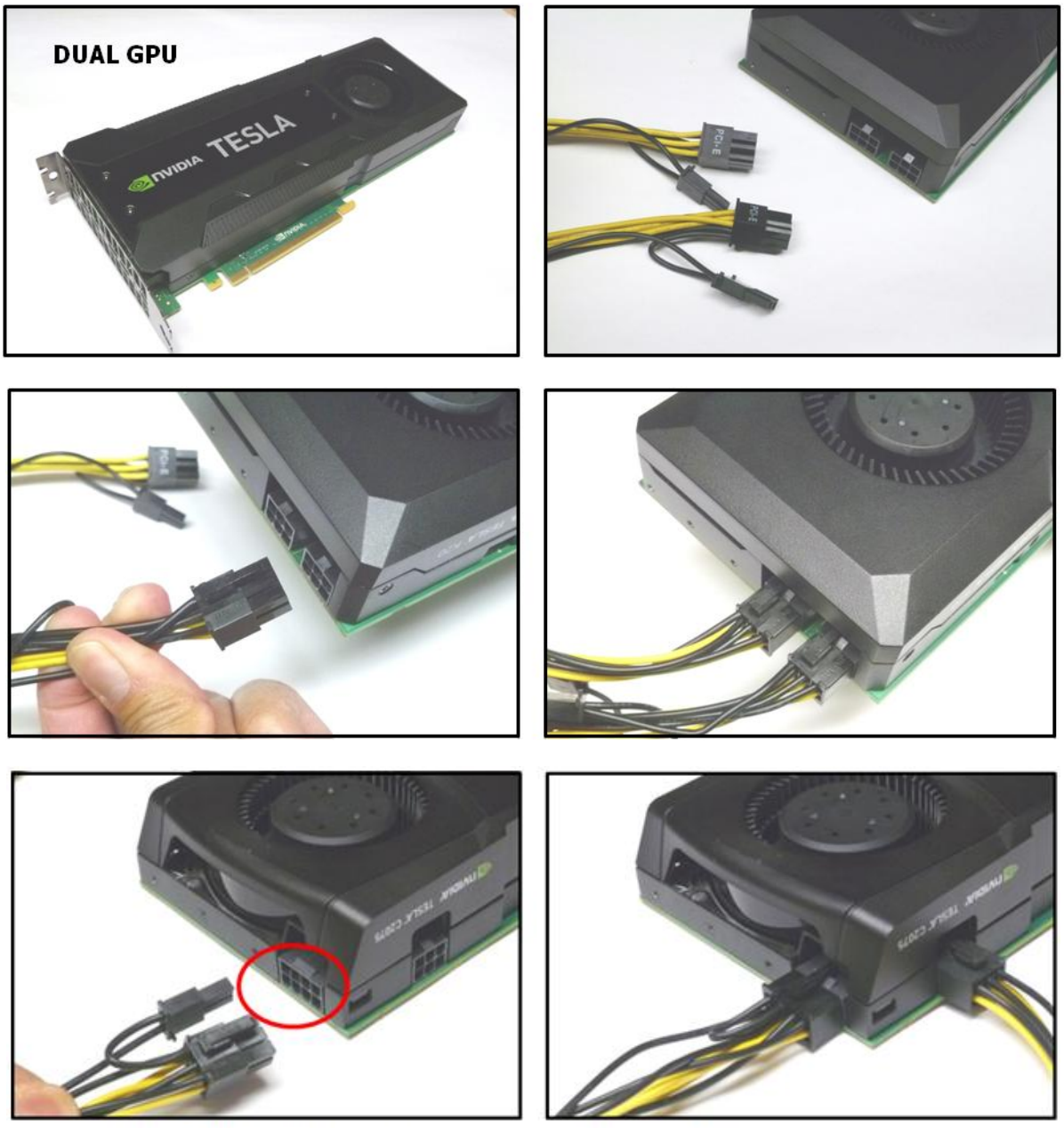


High Power PCIe card installation

High Power PCIe cards also known as High End PCIe cards such as GPUs and other similar type of card requires additional power (or AUX Power) to operate. High power PCIe cards or GPUs that requires auxiliary power should come with power adapter cables.

There are five 4-pin Molex AUX power connectors and two (6+2 pin) PCIe connectors from the power supply that can be used to provide power to your GPUs or High Power PCIe cards.

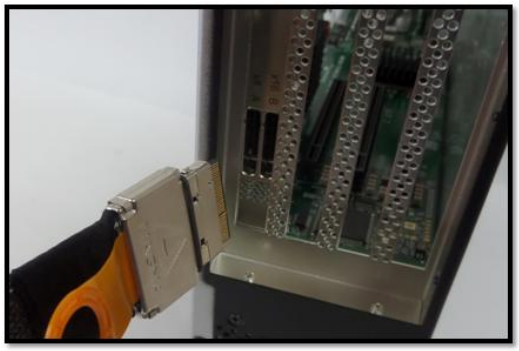
Other High power PCIe cards may use different Aux power adapter connectors. Use the correct power adapter for your PCIe cards.



Other GPUs or PCIe cards may require the use of 8 pin connectors.

Connect PCIe Cable (STEP 5)

Connect one end of the PCIe cable to the back of the Magma expansion unit, make sure to use the x8 port of the Expansion Interface card, see pictures below.

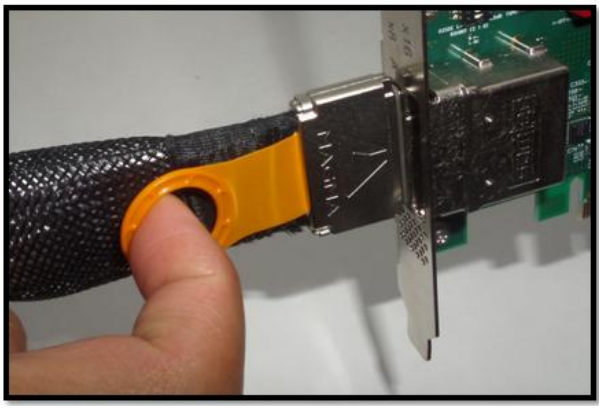


Connect the other end of the PCIe cable to host computer (x8 port), see pictures below.

Electrostatic Discharge (ESD) Warning
The PCIe cables are high performance communication cables and as such are sensitive to electrostatic discharge (ESD). Use appropriate anti-static precautions and packaging when handling the cables or when performing installation and/or maintenance

To Disconnect Cable

3. Pull the orange tab while slowly pulling out the cable from the interface card.
4. Failure to pull the orange tab while disconnecting the cable can break the connector inside the Interface card.



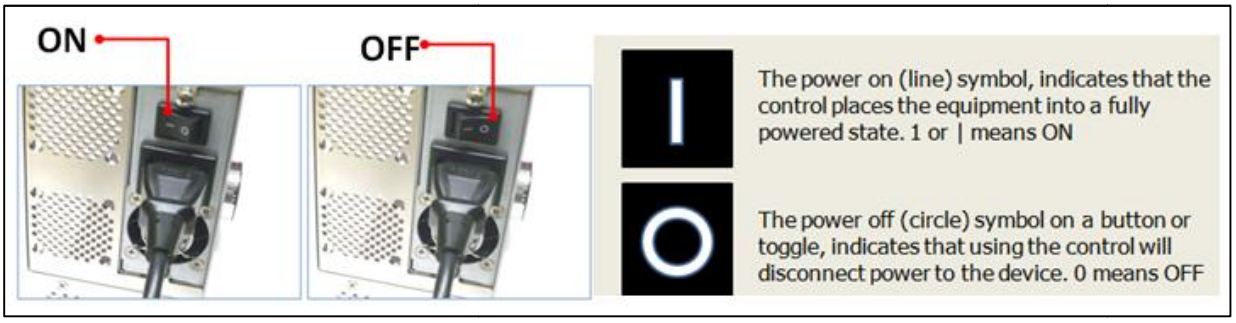
Cable Configuration

You can only connect the PCIe cable to the x8 port of the Interface card.
Note: Do not plug in the PCIe cable to x16 port, the expansion unit will not operate.

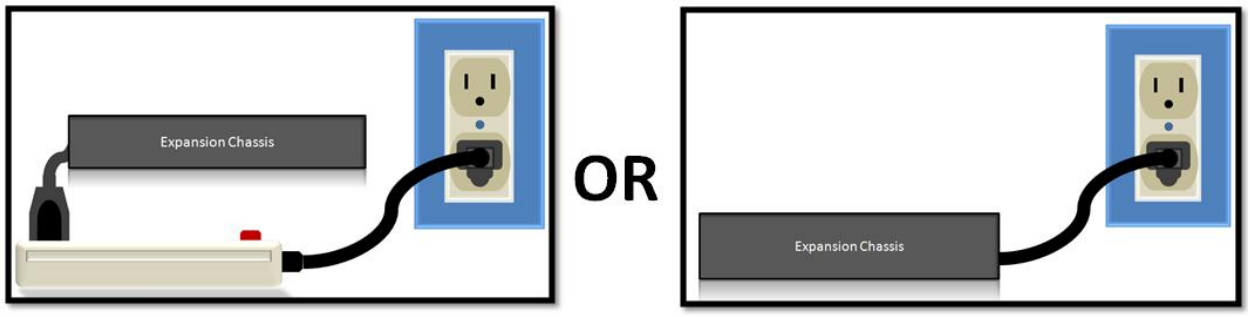
Attach Power Cord (STEP 6)

NOTE
If at all possible, plug the power cord from the expansion chassis and your host computer into a shared power strip, preferably one that has surge and noise suppression circuitry built into it.

3. Make sure the Power Switch is turned OFF first before connecting the power cord to ExpressBox 3200-S8.
4. Turn power supply switch to ON position.


ON
OFF
The power on (line) symbol, indicates that the control places the equipment into a fully powered state. 1 or | means ON
The power off (circle) symbol on a button or toggle, indicates that using the control will disconnect power to the device. 0 means OFF

Connect to Electrical Outlet (STEP 7)



Be cautious, practice safe and correct methods when powering up your expansion unit. Before powering ON the system make sure all PCIe cards are seated properly into the card slots.

Turn ON Expansion Unit (STEP 8)

You don't need to press the front On/Off switch to turn the expansion unit ON. Proceed to next step "Power ON the computer".

Power ON the Computer (STEP 9)

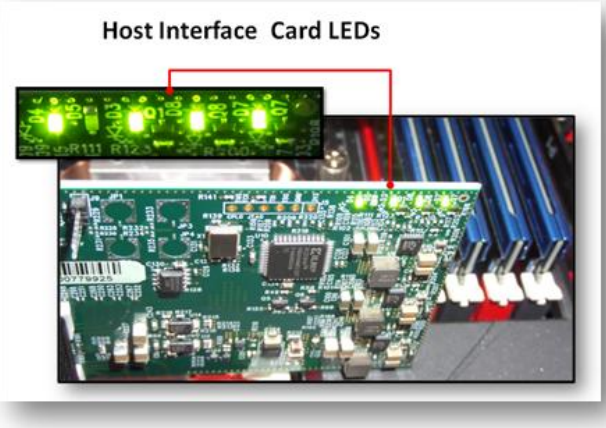
ExpressBox 3200-S8 will automatically turn ON when the computer is turned ON. A white light located on the front panel will shine when the expansion chassis is ON. ExpressBox 3200-S8 will automatically turn OFF when the computer is turned OFF.

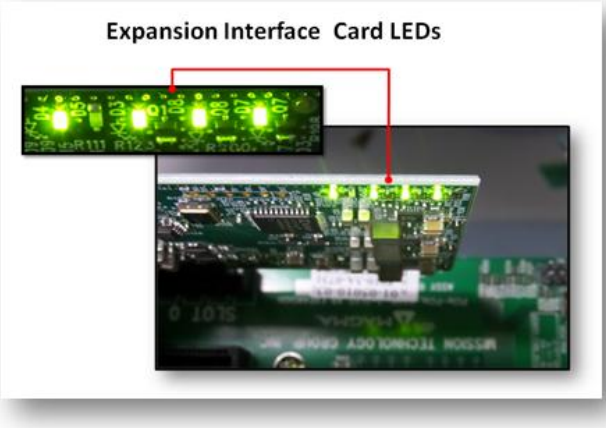
The white light on the front of ExpressBox 3200-S8 is not an On-Off power-push button; it simply indicates whether the chassis is ON or OFF.

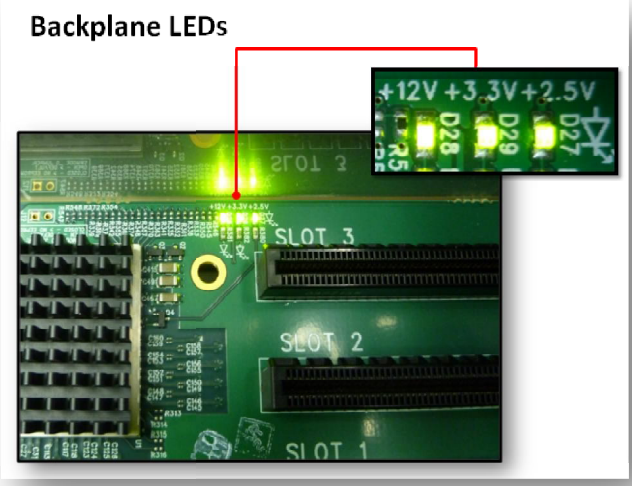
Hardware Check (STEP 10)

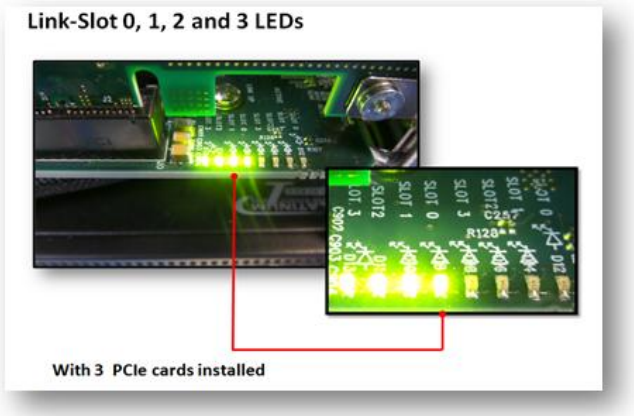
Once you have installed the Interface cards correctly and both computer and expansion chassis are running, the next step is to check the LED Link up status. Verify that the following LEDs on the Expansion and Host Interface cards are ON. Host and Expansion cards with a proper link established should show up with 4 solid green LEDs.

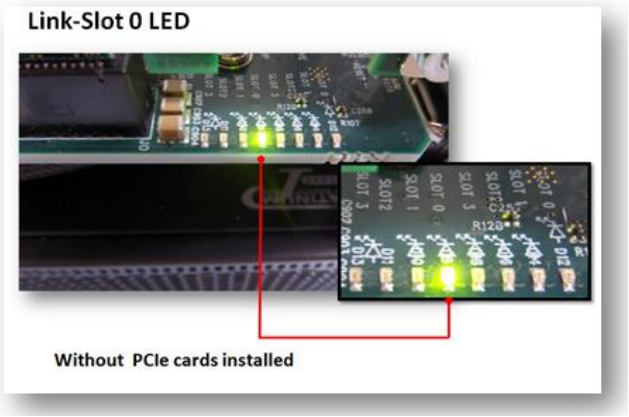
2. You should see the following LEDs are illuminated:
    e. Four green LEDs on the Expansion Interface card.
    f. Four green LEDs on the Host Interface Card.
    g. Three green LEDs on the backplane.
    h. One green LED on Link-Slot 0 (If there are no 3rd Party PCIe cards are installed in the slots). Or four green LEDs if all three PCIe slots are occupied with PCIe cards.











SLOT#	When LED is ON	When LED is Off
SLOT 0	There's a link between computer and expansion unit	No connection or link between computer and expansion unit
SLOT 1	When there is a PCIe card in the slot and it is being recognized by the PCIe switch (of the Expansion unit)	No PCIe card in the card slot
SLOT 2	When there is a PCIe card in the slot and it is being recognized by the PCIe switch (of the Expansion unit)	No PCIe card in the card slot
SLOT 3	When there is a PCIe card in the slot and it is being recognized by the PCIe switch (of the Expansion unit)	No PCIe card in the card slot

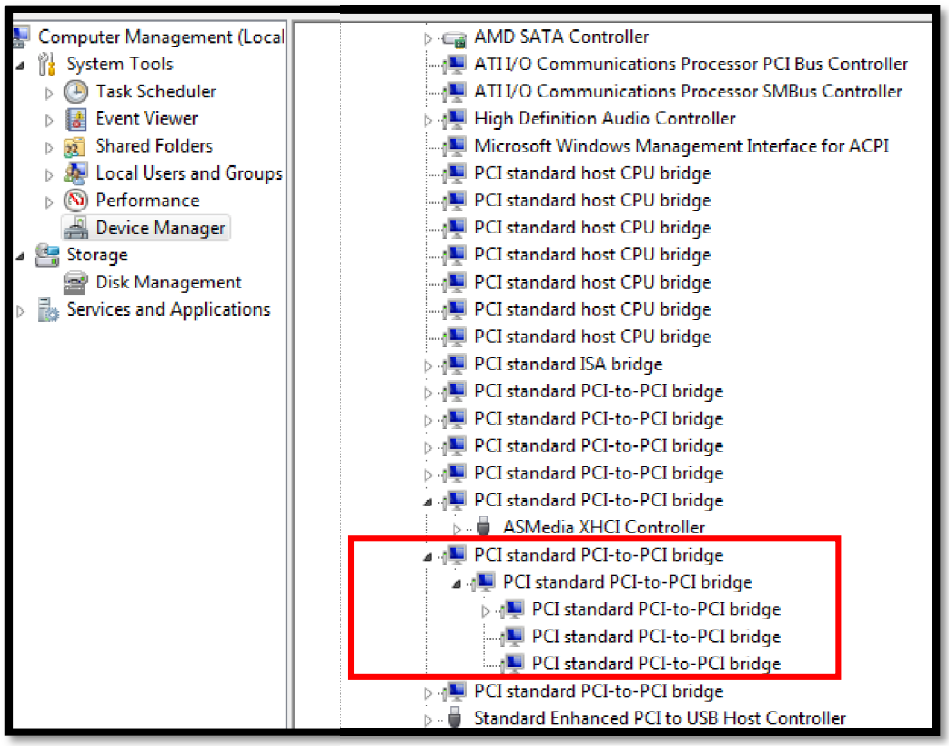
Chapter 2-B Software Installation

IMPORTANT
Magma requires no driver for Windows, Mac OS, Linux and other Operating Systems.

Software Check - Verify Installation (STEP 11)

Check Magma Device - Windows 7 and 8

Open ACPI (BIOS) **à** Open PCI Bus **à** Click the '+' sign several times until your reach a PCI Express Root Port or PCI Standard PCI-to-PCI Bridge with a PCI Standard PCI-to-PCI Bridge beneath it. If the verification is successful, you can install 3rd Party cards as well as auxiliary peripherals, such as hard drives into the chassis. If, however, the installation was unsuccessful, you may not see the PCI to PCI Bridge, or it will have a small yellow symbol in front of it as shown below.

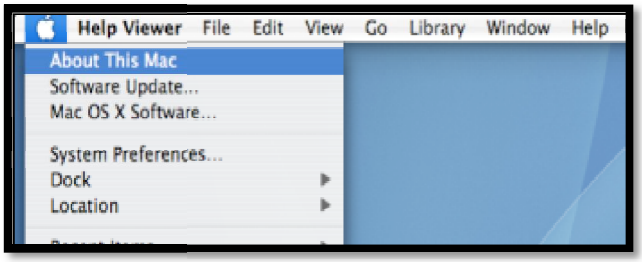


The first instance of PCI standard PCI-to-PCI Bridge is the Host Interface card device.
The second PCI standard PCI-to-PCI Bridge is the Expansion Interface card device.
Beneath the second PCI standard PCI-to-PCI Bridge are three instances of PCI standard PCI-to-PCI Bridges, these are the three PCIe slots.

Check Magma device - Mac OS X

IMPORTANT
Magma requires no driver for Mac OS.

To verify a successful installation of Magma ExpressBox 3200-S8 on Mac select "About This Mac" under the Apple Icon.



4. Your first step will vary depending on which version of Mac OS X you are using:

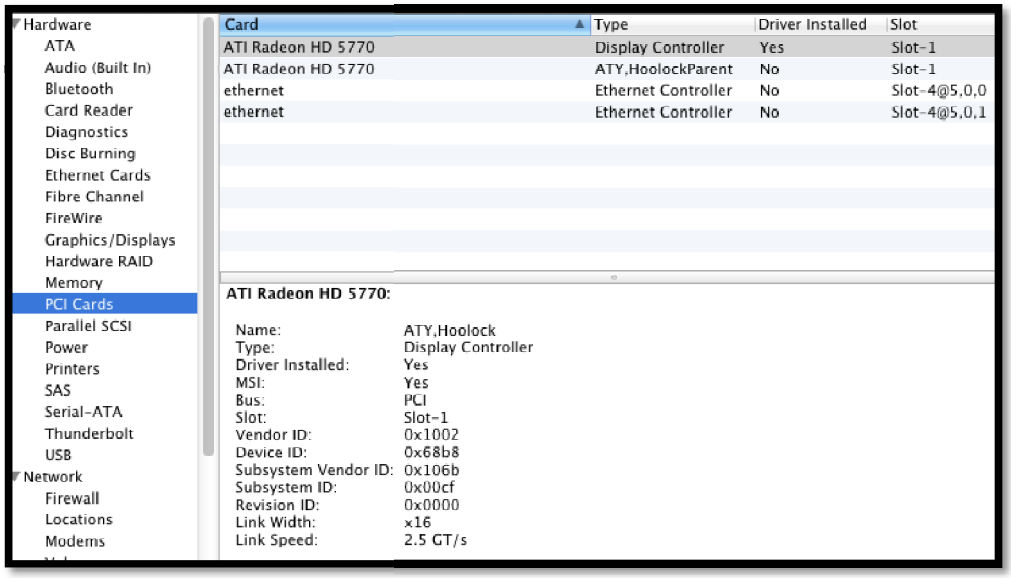
Mac OS X 10.6.8 Snow Leopard or earlier:

- Open Apple System Profiler by choosing about this Mac from the Apple ( ) menu. Then, click More Info.

OS X Lion 10.7 or later:

- Open System Information by choosing About this Mac from the Apple ( ) menu. Then, click System Report

5. Click PCI Cards. You should see the PCIe cards installed in the Magma expansion chassis.
6. Magma devices are transparent to the Operating System. It will only show the cards installed in the expansion chassis.



Check Magma device – Linux

Once the ExpressBox 3200-S8 expansion unit has been installed in a Linux-based system, its installation can be verified by typing the following command lines:

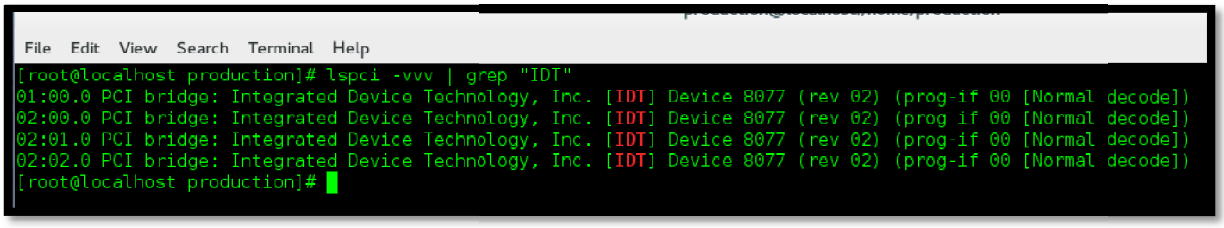
lspci –t Displays the overall structure of the PCIe expansion system

lspci –vv Lists additional information about the PCIe switch (in our case it will list the Integrated Device Technology (IDT) information.

lspci –vvv Displays the most comprehensive information about the expansion system.

Typical output from lspci –vvv is verbose, but you can dig through the information to find very important information. There are many registers and settings associated with PCI Express Switches.

Use the "lspci | grep "IDT" command to check that the Magma card slot devices are detected (see image below).


File Edit View Search Terminal Help
[root@localhost production]# lspci -vvv | grep "IDT"
01:00.0 PCI bridge: Integrated Device Technology, Inc. [IDT] Device 8077 (rev 02) (prog-if 00 [Normal decode])
02:00.0 PCI bridge: Integrated Device Technology, Inc. [IDT] Device 8077 (rev 02) (prog-if 00 [Normal decode])
02:01.0 PCI bridge: Integrated Device Technology, Inc. [IDT] Device 8077 (rev 02) (prog-if 00 [Normal decode])
02:02.0 PCI bridge: Integrated Device Technology, Inc. [IDT] Device 8077 (rev 02) (prog-if 00 [Normal decode])
[root@localhost production]#

How To Check PCIe cards - Mac OS X

3. Your first step will vary depending on which version of Mac OS X you are using:

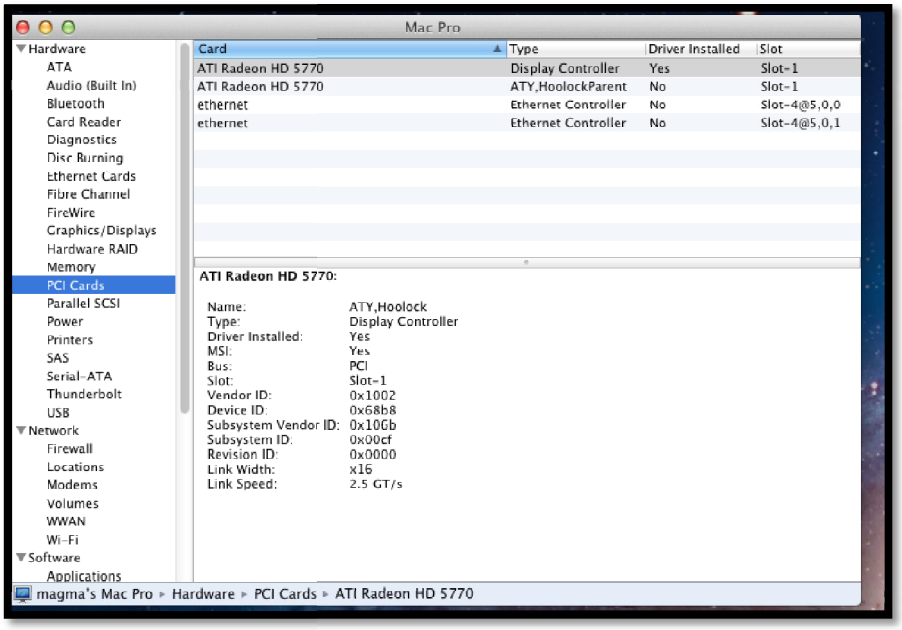
Mac OS X 10.6.8 Snow Leopard or earlier:

- Open Apple System Profiler by choosing About this Mac from the Apple ( ) menu. Then, click More Info.

OS X Lion 10.7 or later:

- Open System Information by choosing About this Mac from the Apple ( ) menu. Then, click System Report

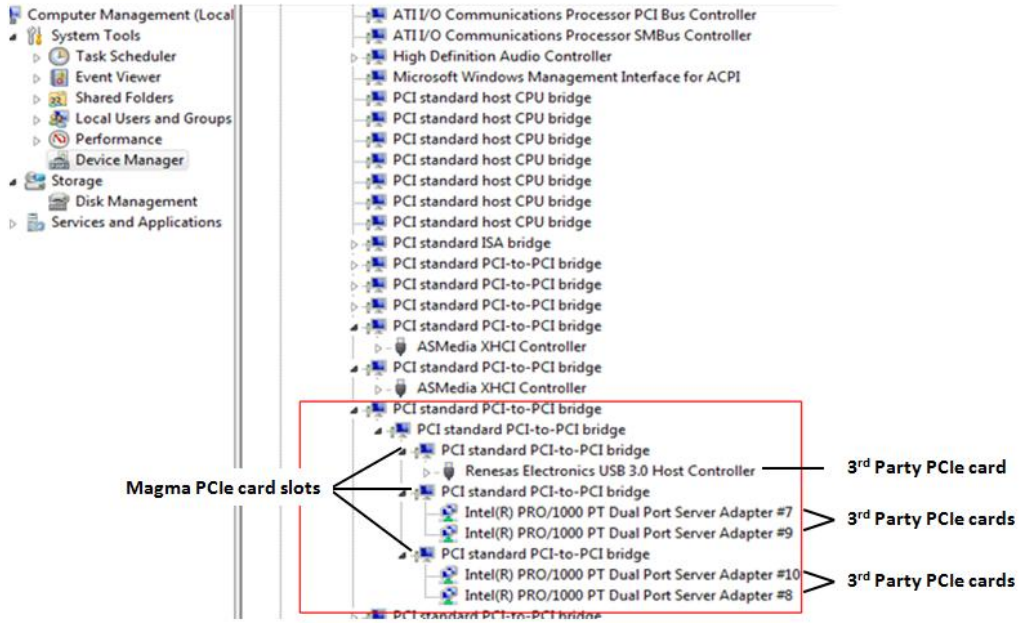
4. Click PCI cards



How To Check PCIe cards - Windows 7 and 8

No special drivers have been required for Magma Expansion and Host Interface card with Windows 7. However, you would need drivers for any 3rd Party PCIe cards that you install into the expansion unit. Drivers for 3rd Party PCIe cards can be obtained from the vendor or manufacturer of the PCIe cards. Magma does not provide nor supply 3rd Party drivers.

The picture below shows three 3rd Party PCIe cards appearing beneath each PCI standard PCI-to-PCI Bridge. All 3rd Party PCIe cards are recognized / detected without any error (yellow exclamation point).


Computer Management (Local
System Tools
Task Scheduler
Event Viewer
Shared Folders
Local Users and Groups
Performance
Device Manager
Storage
Disk Management
Services and Applications
ATI I/O Communications Processor PCI Bus Controller
ATI I/O Communications Processor SMBus Controller
High Definition Audio Controller
Microsoft Windows Management Interface for ACPI
PCI standard host CPU bridge
PCI standard host CPU bridge
PCI standard host CPU bridge
PCI standard host CPU bridge
PCI standard host CPU bridge
PCI standard host CPU bridge
PCI standard host CPU bridge
PCI standard ISA bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
ASMedia XHCI Controller
PCI standard PCI-to-PCI bridge
ASMedia XHCI Controller
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
Renesas Electronics USB 3.0 Host Controller
PCI standard PCI-to-PCI bridge
Intel(R) PRO/1000 PT Dual Port Server Adapter #7
Intel(R) PRO/1000 PT Dual Port Server Adapter #9
PCI standard PCI-to-PCI bridge
Intel(R) PRO/1000 PT Dual Port Server Adapter #10
Intel(R) PRO/1000 PT Dual Port Server Adapter #8
Magma PCIe card slots
3rd Party PCIe card
3rd Party PCIe cards
3rd Party PCIe cards

Chapter 2-C Storage Device Installation & Configuration

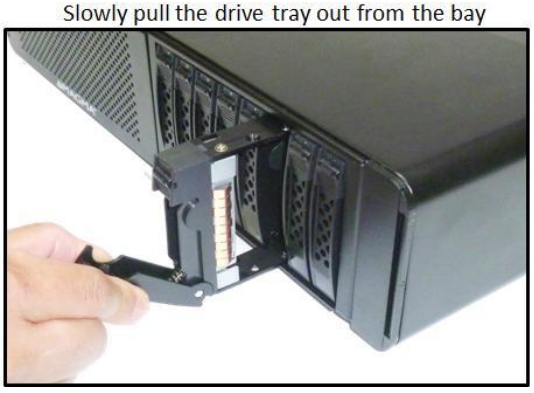
1. Shutdown the computer
2. Disconnect the Cable from the Expansion unit.
3. Remove top cover.
4. Install Disk Drives (follow steps below)
5. Install Controller Card (see page 31)
6. Install Top Cover
7. Connect Cable
8. Plug-in Power Cord
9. Attach Power Cord
10. Connect to Electrical Outlet
11. Power on Computer, ExpressBox3200-s8 turns on automatically
12. Hardware Check
13. Verify Installation (via Operating System)
14. Install Driver for Controller card. Obtain the Software / driver from the manufacturer of the card.
15. Configure Disk Drives - SAS / SATA Raid (see instructions on page 36)

Disk Drives Installation

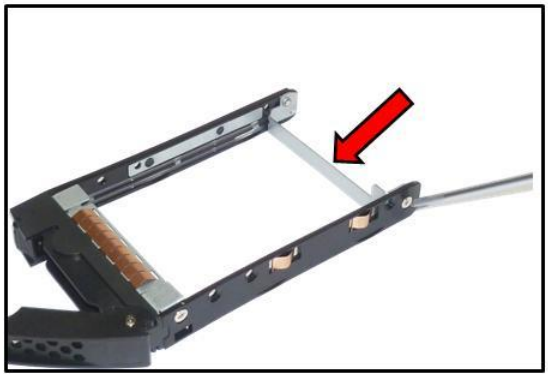
Remove drive tray from the storage bay.

Press top button to release front mechanical latch

Slowly pull the drive tray out from the bay

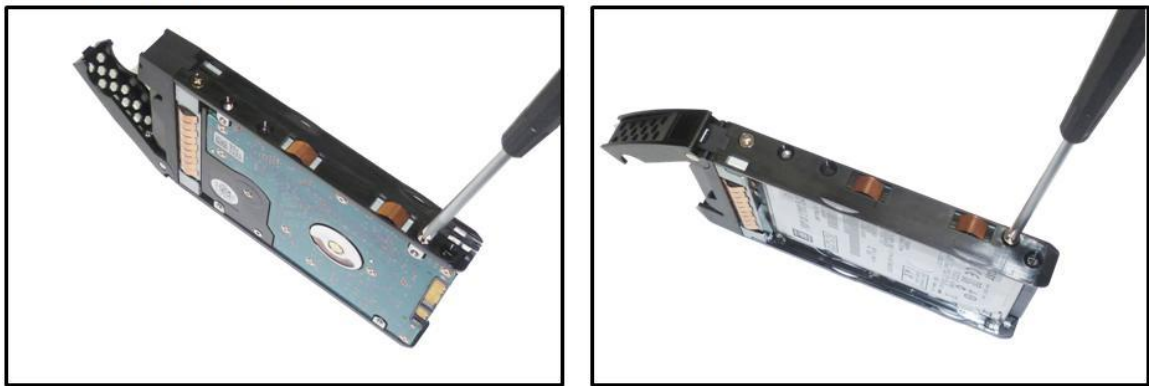


Remove the metal retainer



Mount drive into drive tray as shown from the picture below. Pay attention to the correct orientation of the tray and position of the drive.

Secure drive properly to avoid getting detached from tray

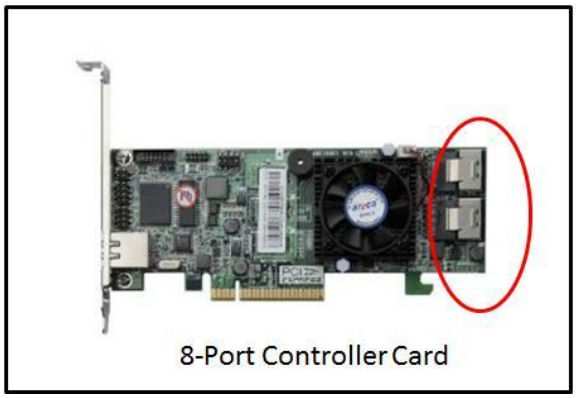


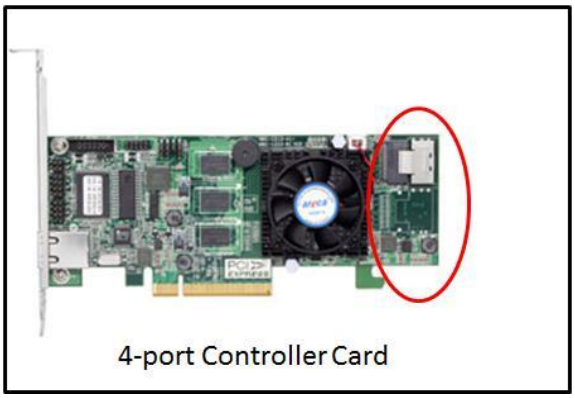
Prior to putting the drive tray back into the drive bay make sure the front mechanical latch is released. Slide the drive tray all the way in slot and then press the mechanical latch to secure.

Controller Card Installation

Use a disk controller card that can support 8 drives. We recommend using an Areca Controller card or a PCIe Controller card that is supported by Mac OS X and Windows. Below are pictures of two Areca PCIe Controller cards.

1. 8-port Controller card supports 8 drives.
2. 4-port Controller card supports 4 drives.

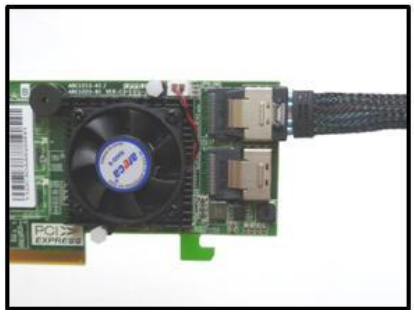


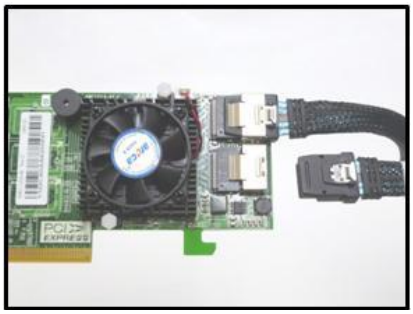


Connect the SAS / SATA Cable to controller card.

a) If you have four drives installed you have to connect one SAS / SATA Cable to controller card.
b) If you have 8 drives, connect two SAS / SATA cable.

NOTE: When installing four drives make sure to place them in one-bay location. The storage bays are divided into two or four drives per bay.





Plug-in controller card into any available PCIe slots and secure it.

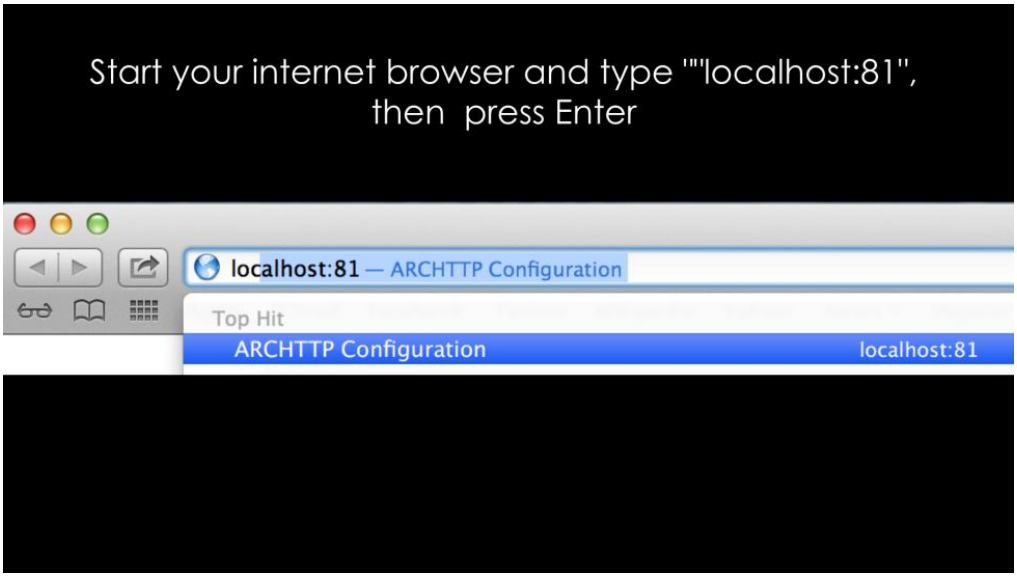
SAS / SATA Raid Configuration

IMPORTANT
This chapter describes how to configure the disk controller card. This software configuration is specific only to vendor Areca. Different vendors (i.e. ATTO, Intel, LSI and etc.) of disk controller cards have their own software utility for RAID configuration and management. If you are using a non-Areca card make sure to check with the vendor or manufacturer of the card for further instructions.

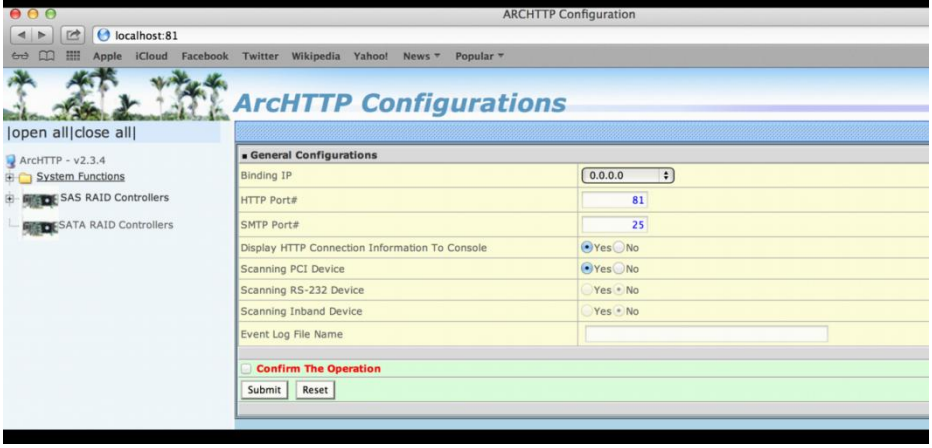
Areca has its own Graphical User Interface for RAID configuration and management. You need to install Archttp first, follow the instructions below

1. Go to http://www.areca.com.tw
2. Click Support & Downloads
3. Go to Driver / Utility, select Windows
4. Under "Windows-ArcHTTP" click, Version V2.3.4 to download
5. Save File "winhttp_V2.3.4_130325.zip"
6. Extract the File
7. Click Install.exe to install Archttp
8. After Installation, reboot Computer

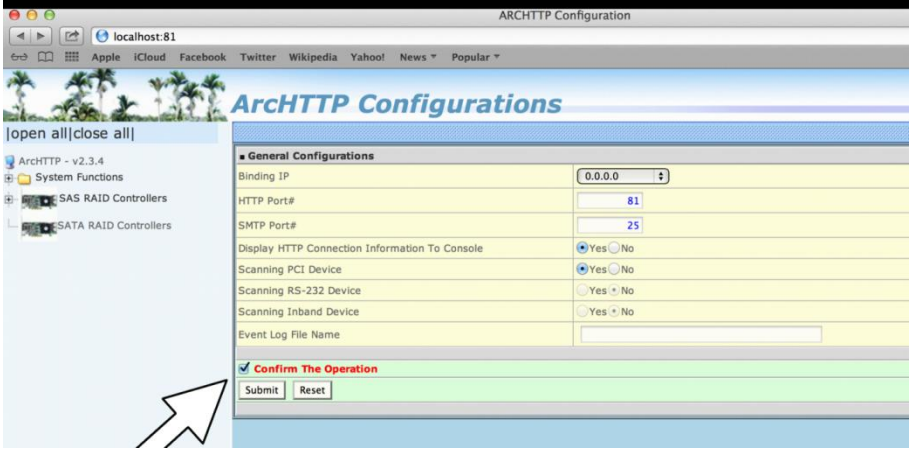
NOTE: These steps are applicable to Windows 7, Windows 8 and Mac OSx. Use Firefox / Mozilla as your Browser to launch the ARCHTTP.



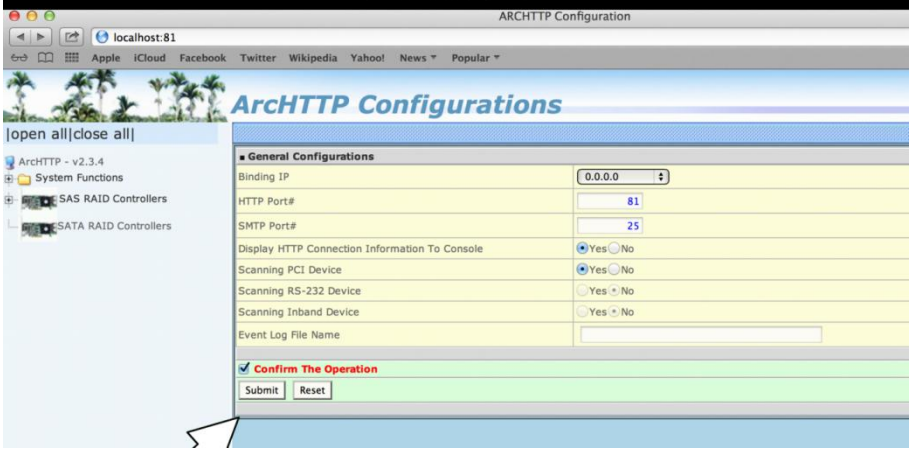
General Configurations screen comes up



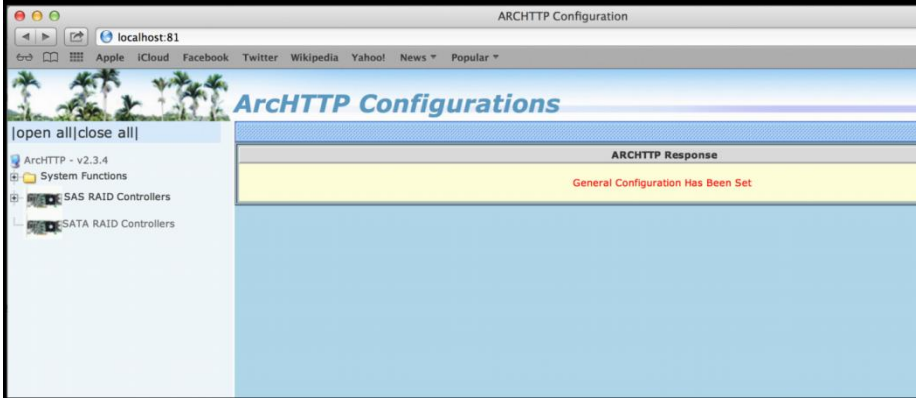
Check "Confirm The Operation" box



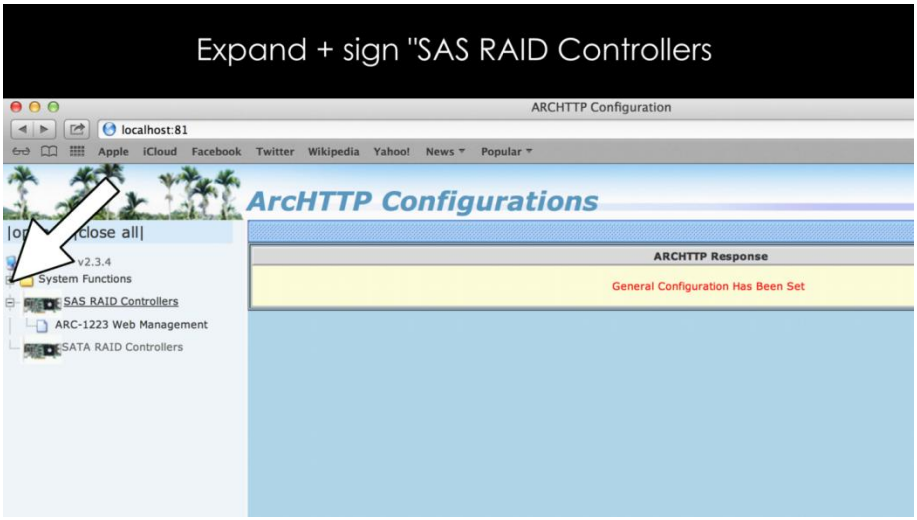
Click Submit



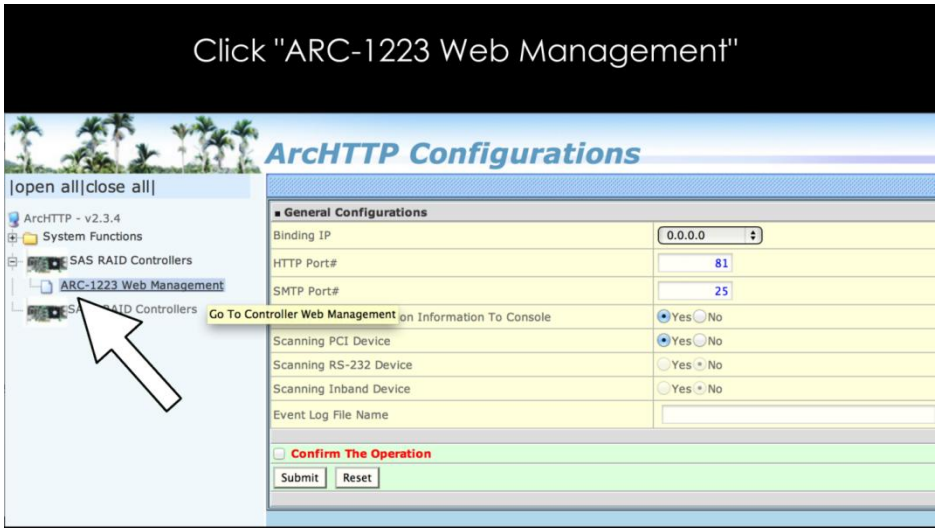
"General Configurations Has Been Set-up" screen comes up



Expand + sign "SAS RAID Controllers

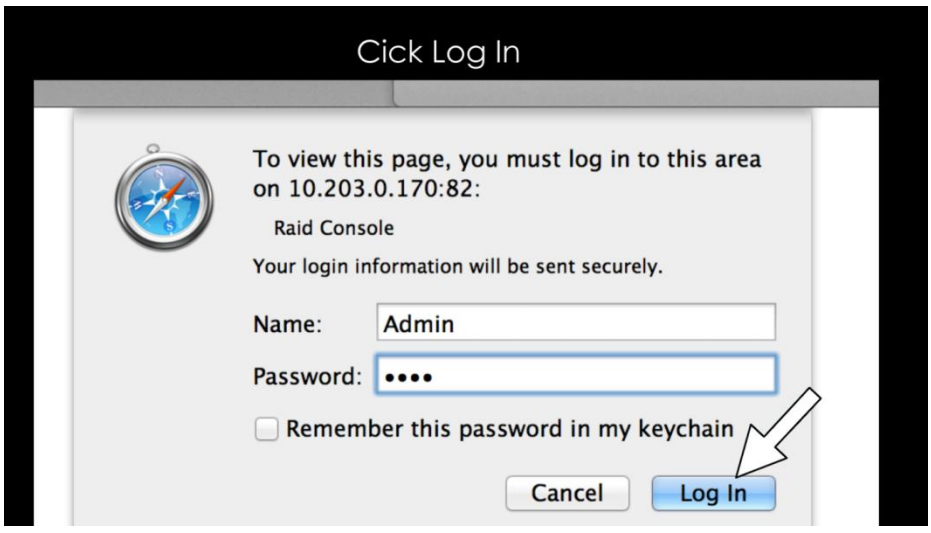


Click "ARC-1223 Web Management"

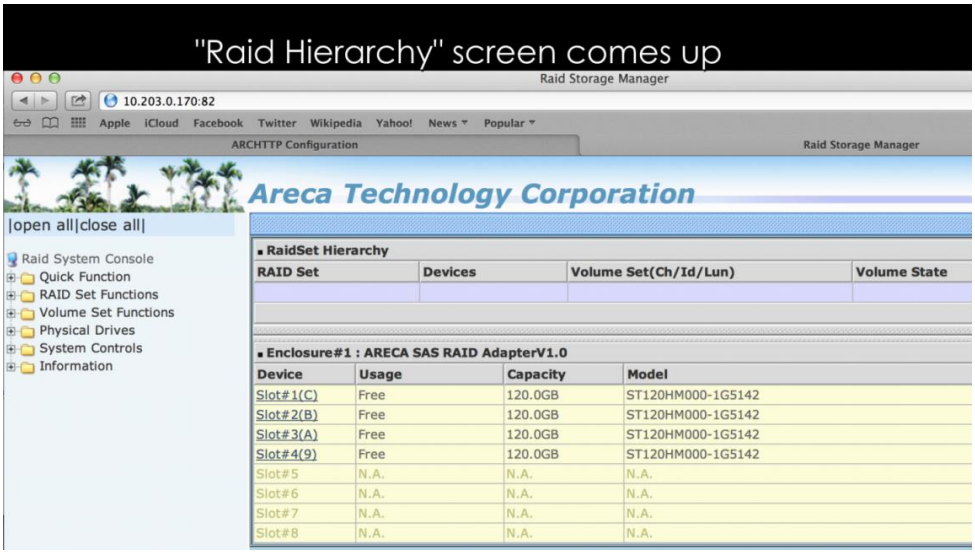


Name & Password screen comes up
Untitled
10.203.0.170:82
iCloud
Facebook
Twitter
Wikipedia
Yahoo!
News
Popular
ARCHTTP Configuration
To view this page, you must log in to this area on 10.203.0.170:82:
Raid Console
Your login information will be sent securely.
Name:
Password:
Remember this password in my keychain
Cancel
Log In

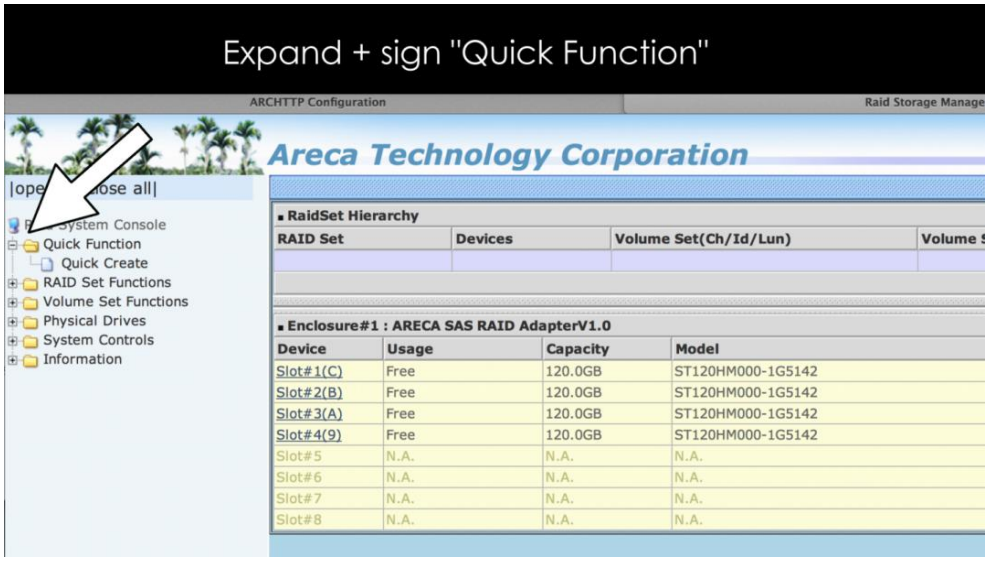
Name is Admin. Password is 0000
Untitled
10.203.0.170:82
iCloud
Facebook
Twitter
Wikipedia
Yahoo!
News
Popular
ARCHTTP Configuration
To view this page, you must log in to this area on 10.203.0.170:82:
Raid Console
Your login information will be sent securely.
Name:
Password:
Remember this password in my keychain
Cancel
Log In


Cick Log In
To view this page, you must log in to this area on 10.203.0.170:82:
Raid Console
Your login information will be sent securely.
Name:
Admin
Password:
Remember this password in my keychain
Cancel
Log In

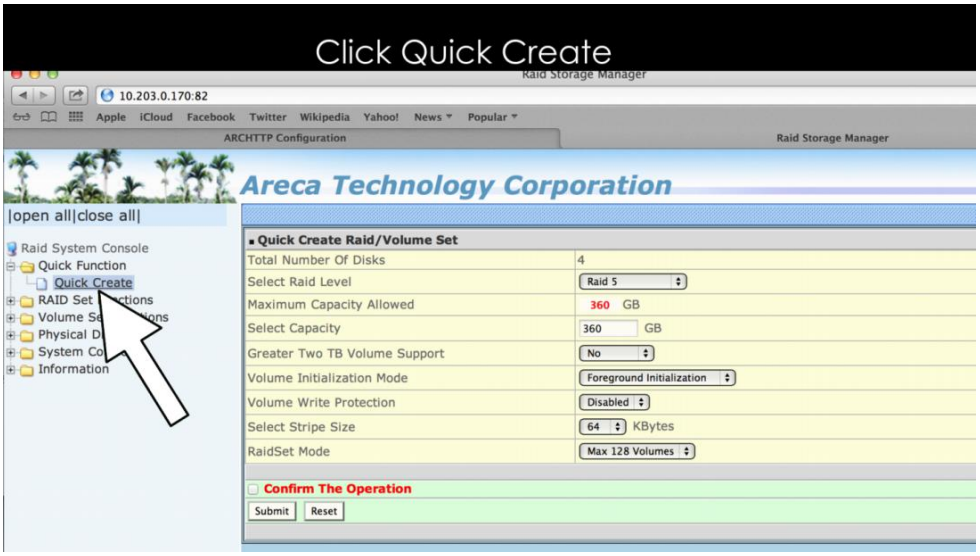
"Raid Hierarchy" screen comes up

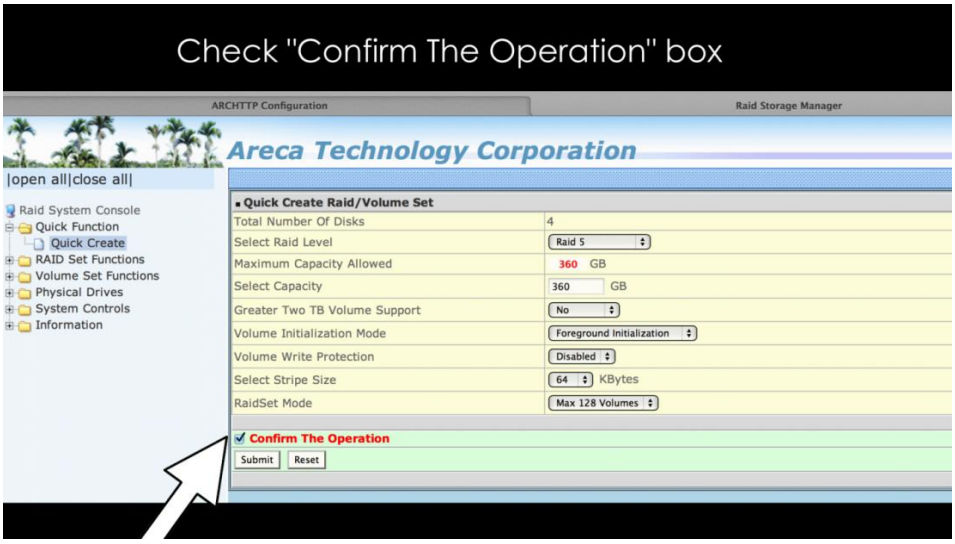


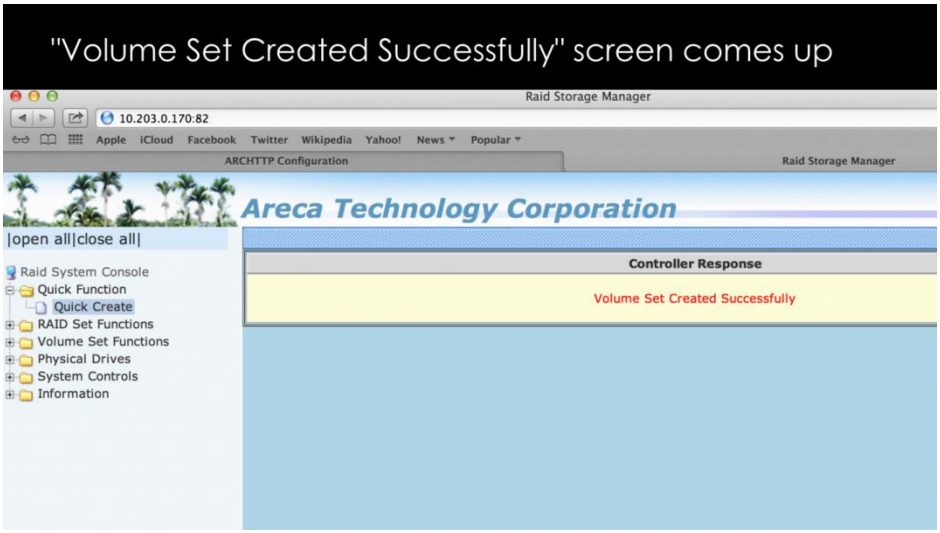
Expand + sign "Quick Function"

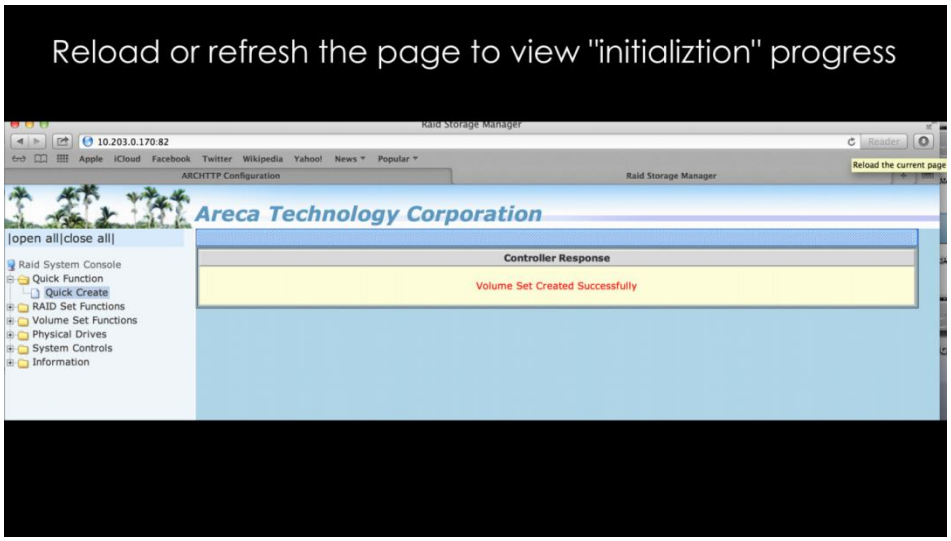


Click Quick Create

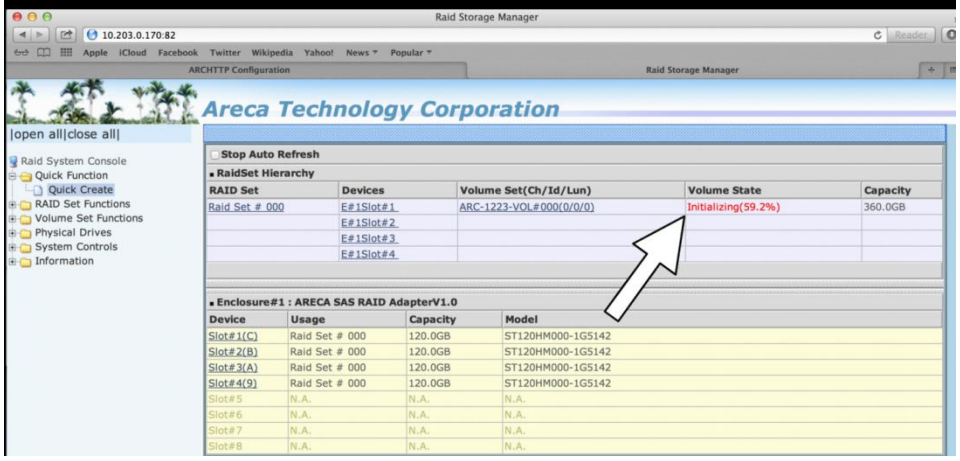



Check "Confirm The Operation" box
ARCHTTP Configuration
Raid Storage Manager
Areca Technology Corporation
|open all|close all|
Raid System Console
Quick Function
Quick Create
RAID Set Functions
Volume Set Functions
Physical Drives
System Controls
Information
Quick Create Raid/Volume Set
Total Number Of Disks
4
Select Raid Level
Raid 5
Maximum Capacity Allowed
360 GB
Select Capacity
360 GB
Greater Two TB Volume Support
No
Volume Initialization Mode
Foreground Initialization
Volume Write Protection
Disabled
Select Stripe Size
64 KBytes
RaidSet Mode
Max 128 Volumes
Confirm The Operation
Submit
Reset

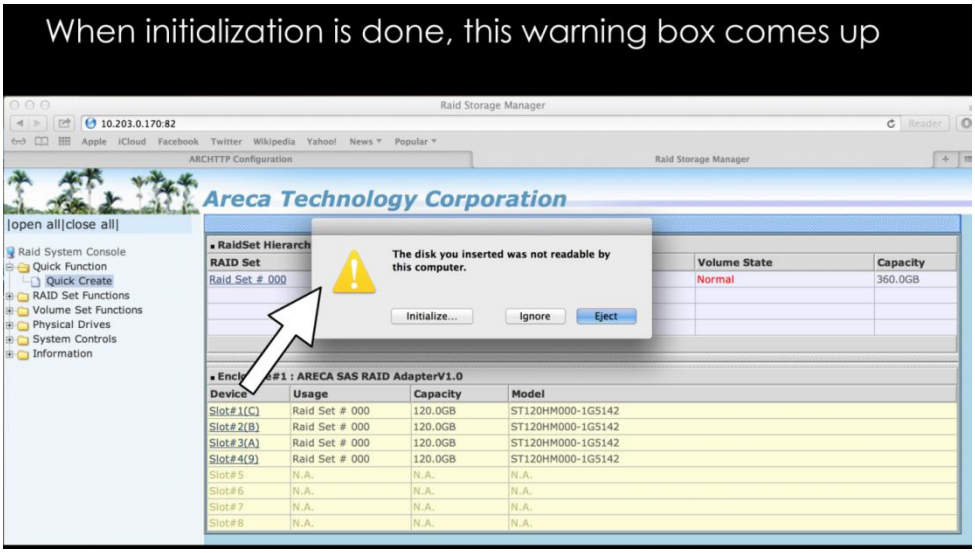

"Volume Set Created Successfully" screen comes up
Raid Storage Manager
10.203.0.170:82
Apple iCloud Facebook Twitter Wikipedia Yahoo! News Popular
ARCHTTP Configuration
Raid Storage Manager
Areca Technology Corporation
|open all|close all|
Raid System Console
Quick Function
Quick Create
RAID Set Functions
Volume Set Functions
Physical Drives
System Controls
Information
Controller Response
Volume Set Created Successfully


Reload or refresh the page to view "initializtion" progress
Raid Storage Manager
10.203.0.170:82
Reload the current page
Areca Technology Corporation
|open all|close all|
Raid System Console
Quick Function
Quick Create
RAID Set Functions
Volume Set Functions
Physical Drives
System Controls
Information
Controller Response
Volume Set Created Successfully

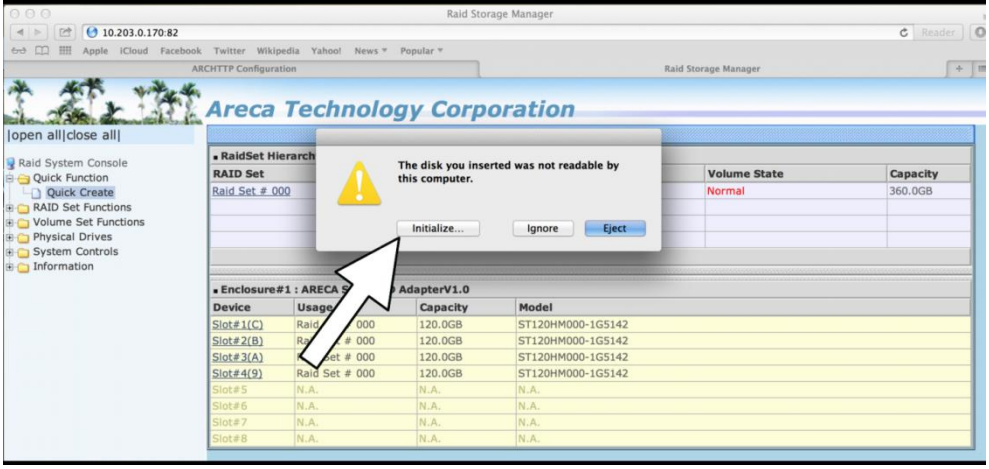
Initialization in progress



When initialization is done, this warning box comes up



Click "Initialize"



After completing the Raid setup you must activate the drive and create a partition. Different Operating Systems have their own utility for creating partitions. On Mac OS you have to use the Disk Utility. On Windows you have to use Disk Management.

IMPORTANT
"The Disk Utility on Mac OSx and Disk Management on Windows OS" are applicable to all disk controller cards / vendors.

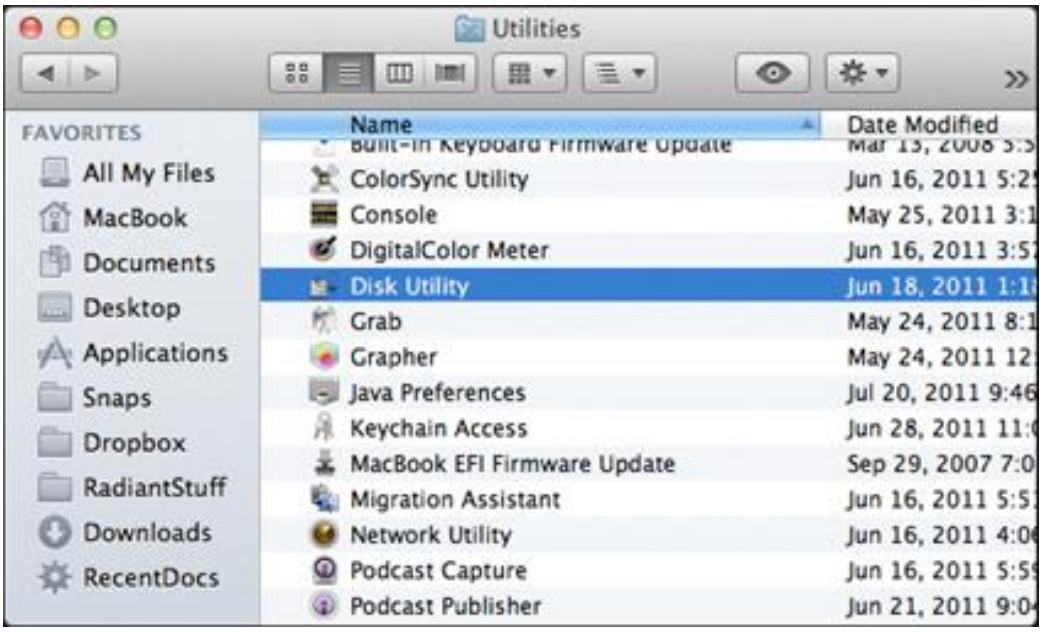
Disk Utility on Mac OS X

What is Disk Utility?

Disk Utility is a free application that's built into OS X that can perform lots of useful actions, is a multipurpose, easy-to-use tool for working with hard drives and drive images. Disk Utility can erase, format, repair, and partition hard drives, as well as create RAID arrays.

Where is Disk Utility?

Open up your Applications folder and open the Utilities folder.

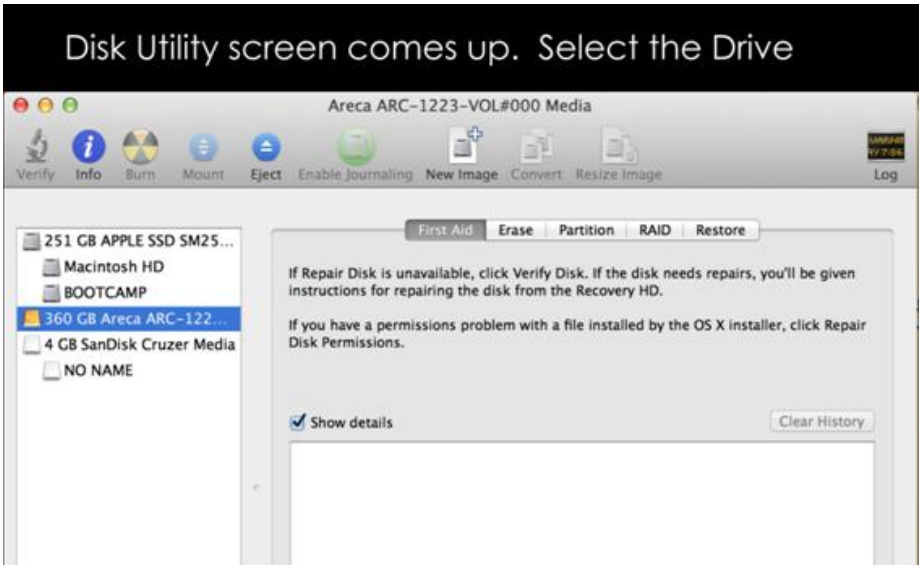


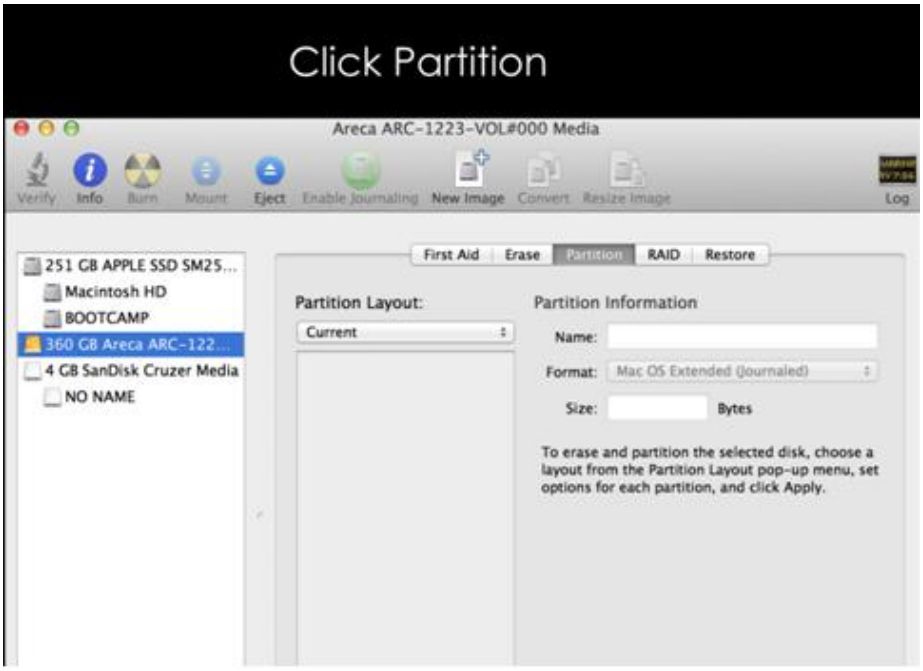
The version and features of Disk Utility depend on the version of Mac OS X. The following image demonstrates Disk Utility in Mac OS X.

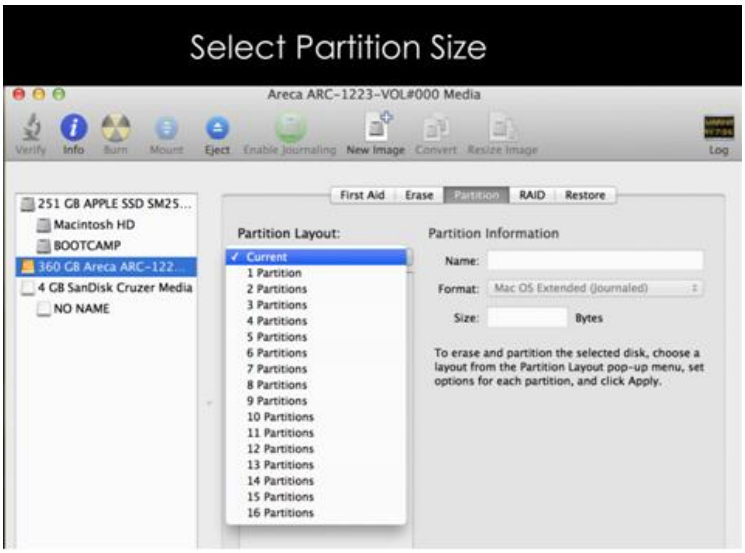
The left pane shows the "disks" currently connected to your Mac. You'll see the hard drive that has the "Macintosh HD" partition. If you have additional internal hard drives or external hard drives connected to your Mac, they too will be visible.

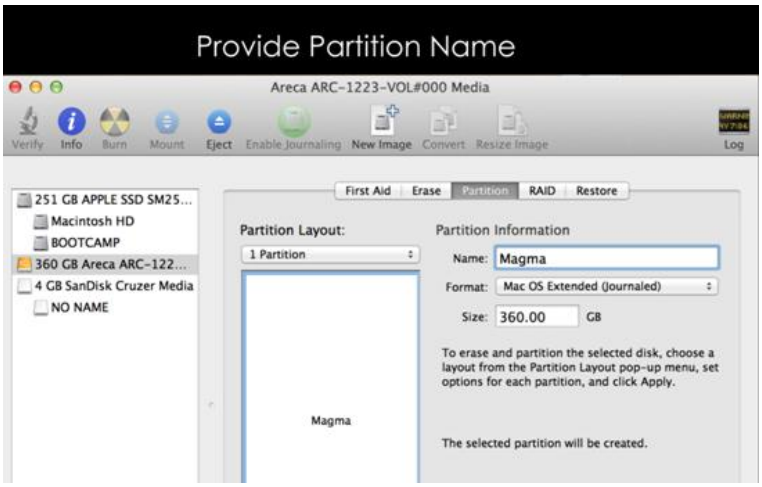
Start Disk Utility

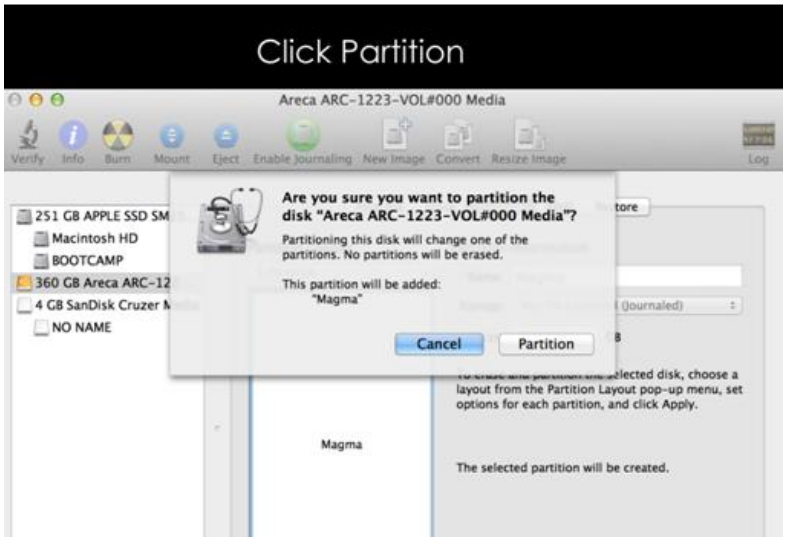
Once you find Disk Utility, launch it and you should see a window something like the one below. Any drive connected to your machine, internal or external, should appear in the menu on the left.

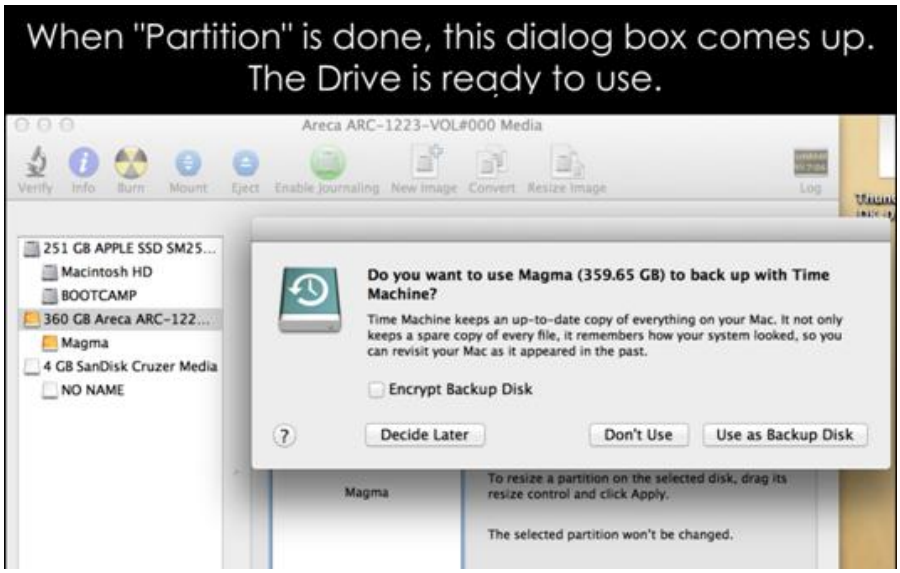





Select Partition Size
Areca ARC-1223-VOL#000 Media
Verify
Info
Burn
Mount
Eject
Enable Journaling
New Image
Convert
Resize Image
Log
251 GB APPLE SSD SM25...
Macintosh HD
BOOTCAMP
360 GB Areca ARC-122...
4 GB SanDisk Cruzer Media
NO NAME
First Aid
Erase
Partition
RAID
Restore
Partition Layout:
Current
1 Partition
2 Partitions
3 Partitions
4 Partitions
5 Partitions
6 Partitions
7 Partitions
8 Partitions
9 Partitions
10 Partitions
11 Partitions
12 Partitions
13 Partitions
14 Partitions
15 Partitions
16 Partitions
Partition Information
Name:
Format:
Mac OS Extended (Journaled)
Size:
Bytes
To erase and partition the selected disk, choose a layout from the Partition Layout pop-up menu, set options for each partition, and click Apply.


Provide Partition Name
Areca ARC-1223-VOL#000 Media
Verify
Info
Burn
Mount
Eject
Enable Journaling
New Image
Convert
Resize Image
Log
251 GB APPLE SSD SM25...
Macintosh HD
BOOTCAMP
360 GB Areca ARC-122...
4 GB SanDisk Cruzer Media
NO NAME
First Aid
Erase
Partition
RAID
Restore
Partition Layout:
1 Partition
Partition Information
Name:
Magma
Format:
Mac OS Extended (Journaled)
Size:
360.00
GB
To erase and partition the selected disk, choose a layout from the Partition Layout pop-up menu, set options for each partition, and click Apply.
Magma
The selected partition will be created.


Click Partition
Areca ARC-1223-VOL#000 Media
Verify
Info
Burn
Mount
Eject
Enable Journaling
New Image
Convert
Resize Image
Log
251 GB APPLE SSD SM
Macintosh HD
BOOTCAMP
360 GB Areca ARC-12
4 GB SanDisk Cruzer M
NO NAME
Are you sure you want to partition the disk "Areca ARC-1223-VOL#000 Media"?
Partitioning this disk will change one of the partitions. No partitions will be erased.
This partition will be added:
"Magma"
Cancel
Partition
(Journaled)
layout from the Partition Layout pop-up menu, set options for each partition, and click Apply.
Magma
The selected partition will be created.


When "Partition" is done, this dialog box comes up.
The Drive is ready to use.
Areca ARC-1223-VOL#000 Media
Verify
Info
Burn
Mount
Eject
Enable Journaling
New Image
Convert
Resize Image
Log
251 GB APPLE SSD SM25...
Macintosh HD
BOOTCAMP
360 GB Areca ARC-122...
Magma
4 GB SanDisk Cruzer Media
NO NAME
Do you want to use Magma (359.65 GB) to back up with Time Machine?
Time Machine keeps an up-to-date copy of everything on your Mac. It not only keeps a spare copy of every file, it remembers how your system looked, so you can revisit your Mac as it appeared in the past.
Encrypt Backup Disk
Decide Later
Don't Use
Use as Backup Disk
Magma
To resize a partition on the selected disk, drag its resize control and click Apply.
The selected partition won't be changed.

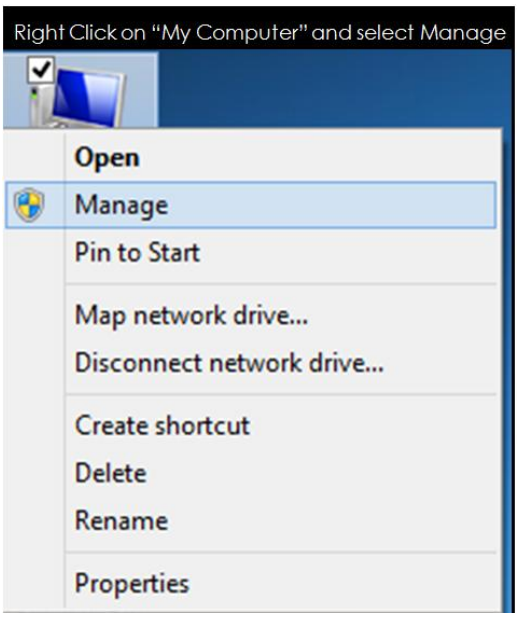
Disk Management on Windows OS

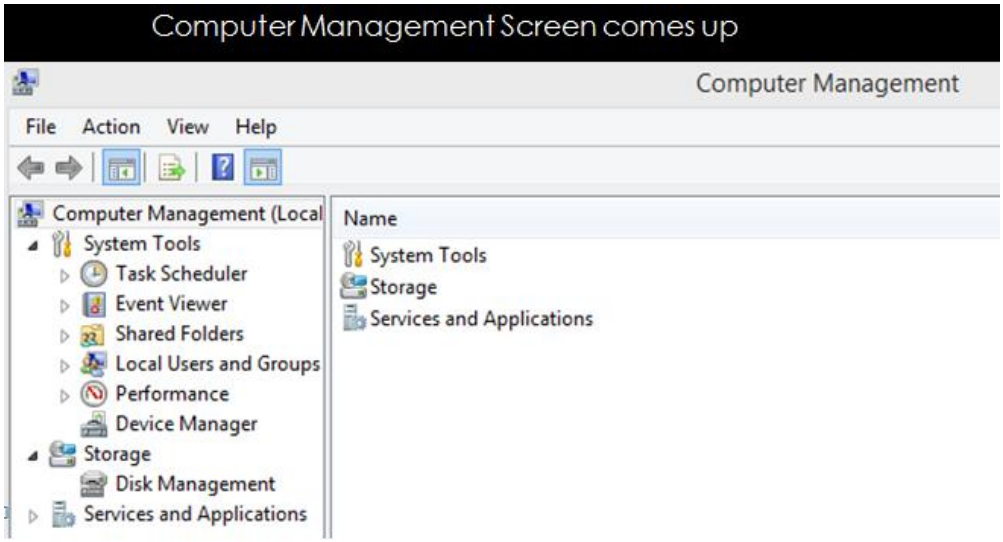
What is Disk Management?

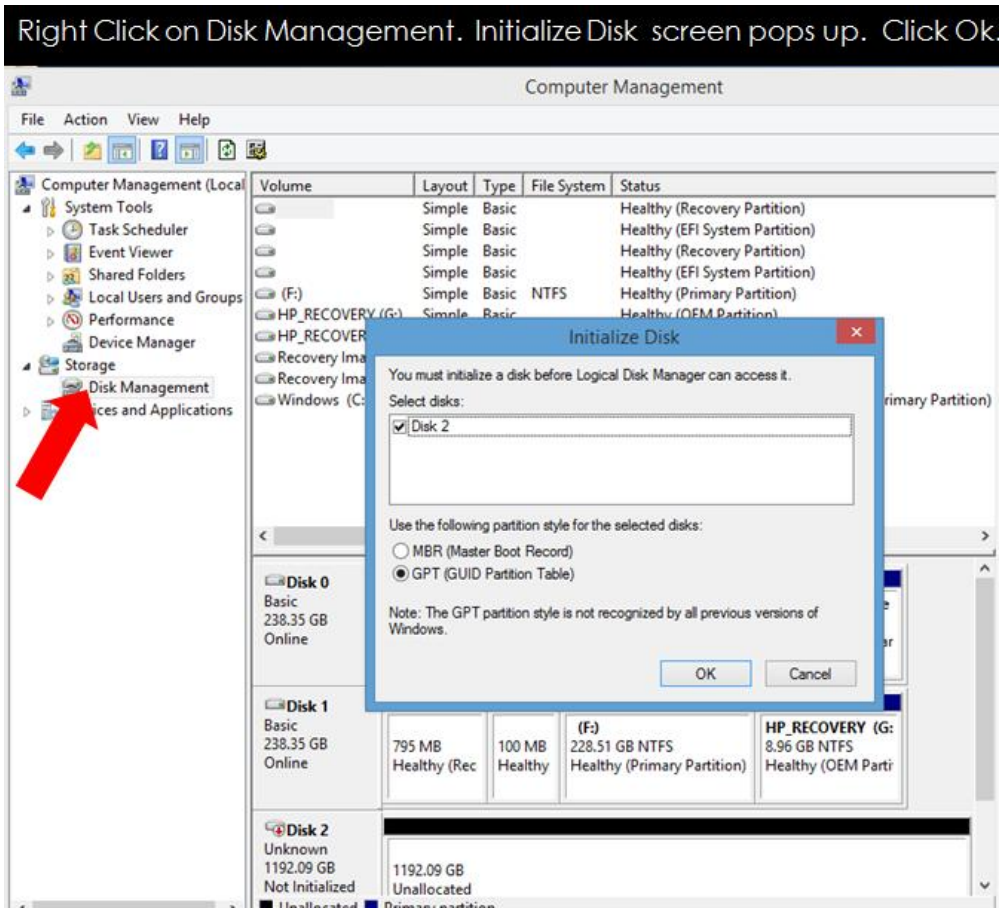
Disk Management is an extension of the Microsoft Management Console that allows full management of the disk-based hardware recognized by Windows. It is used to manage the drives installed in a computer - like hard disk drives (internal and external), optical disk drives, and flash drives. Disk Management can be used to partition drives, format drives, assign drive letters, and much more

How To Access Disk Management:

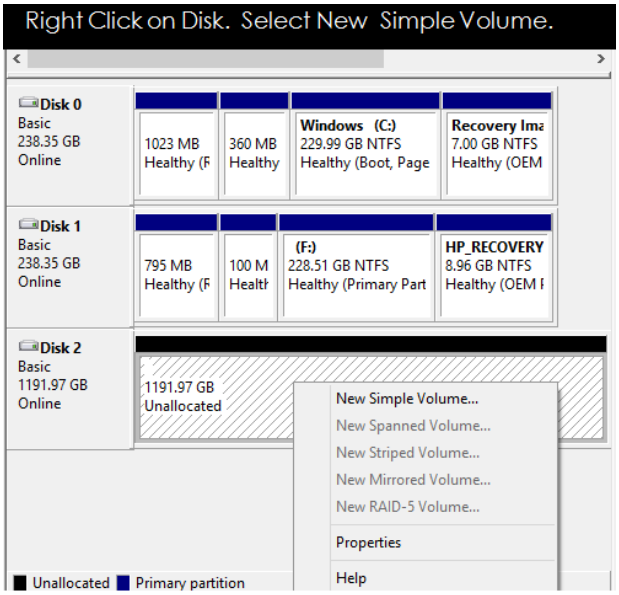
The most common way to access Disk Management is via Computer Management, see image below.



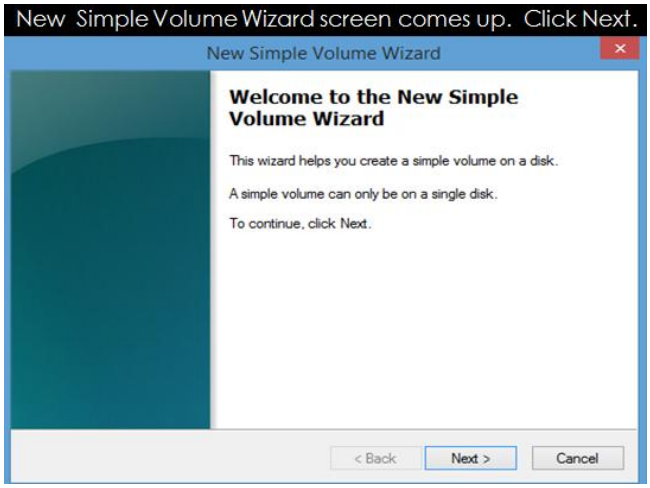

Computer Management Screen comes up
Computer Management
File Action View Help
Computer Management (Local
System Tools
Task Scheduler
Event Viewer
Shared Folders
Local Users and Groups
Performance
Device Manager
Storage
Disk Management
Services and Applications
Name
System Tools
Storage
Services and Applications


Right Click on Disk Management. Initialize Disk screen pops up. Click Ok.
Computer Management
File Action View Help
Computer Management (Local
System Tools
Task Scheduler
Event Viewer
Shared Folders
Local Users and Groups
Performance
Device Manager
Storage
Disk Management
Volume
Layout
Type
File System
Status
Simple Basic Healthy (Recovery Partition)
Simple Basic Healthy (EFI System Partition)
Simple Basic Healthy (Recovery Partition)
Simple Basic Healthy (EFI System Partition)
(F:) Simple Basic NTFS Healthy (Primary Partition)
Initialize Disk
You must initialize a disk before Logical Disk Manager can access it.
Select disks:
Disk 2
Use the following partition style for the selected disks:
MBR (Master Boot Record)
GPT (GUID Partition Table)
Note: The GPT partition style is not recognized by all previous versions of Windows.
OK
Cancel
Disk 0
Basic
238.35 GB
Online
Disk 1
Basic
238.35 GB
Online
795 MB
Healthy (Rec
100 MB
Healthy
(F:)
228.51 GB NTFS
Healthy (Primary Partition)
HP_RECOVERY (G:
8.96 GB NTFS
Healthy (OEM Parti
Disk 2
Unknown
1192.09 GB
Not Initialized
1192.09 GB
Unallocated

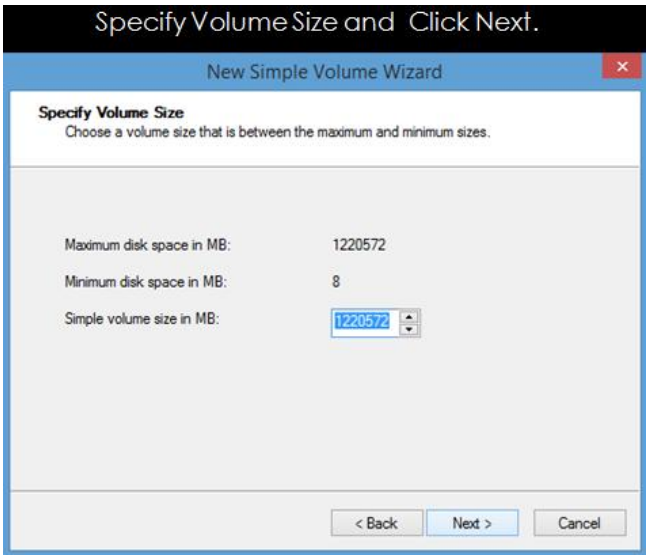
Right Click on Disk. Select New Simple Volume.



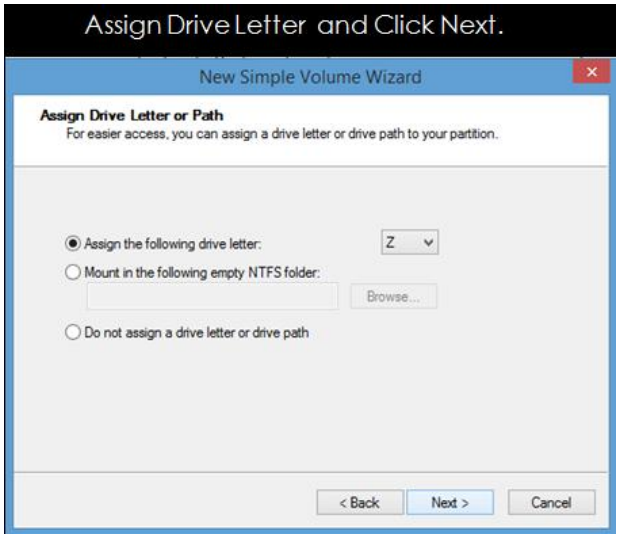
New Simple Volume Wizard screen comes up. Click Next.


New Simple Volume Wizard
Welcome to the New Simple Volume Wizard
This wizard helps you create a simple volume on a disk.
A simple volume can only be on a single disk.
To continue, click Next.
< Back
Next >
Cancel

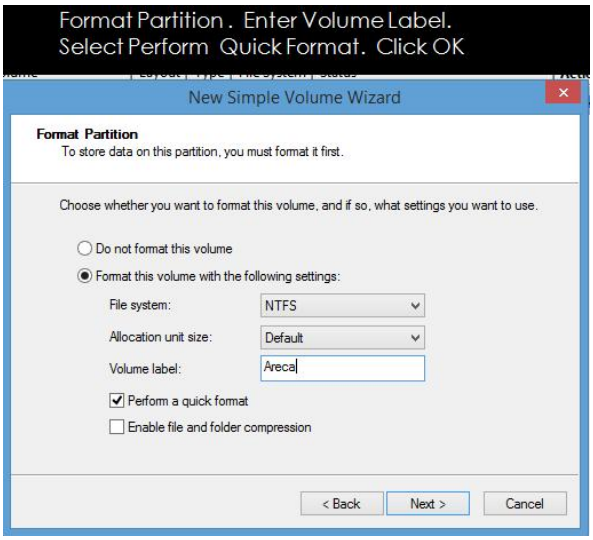
Specify Volume Size and Click Next.



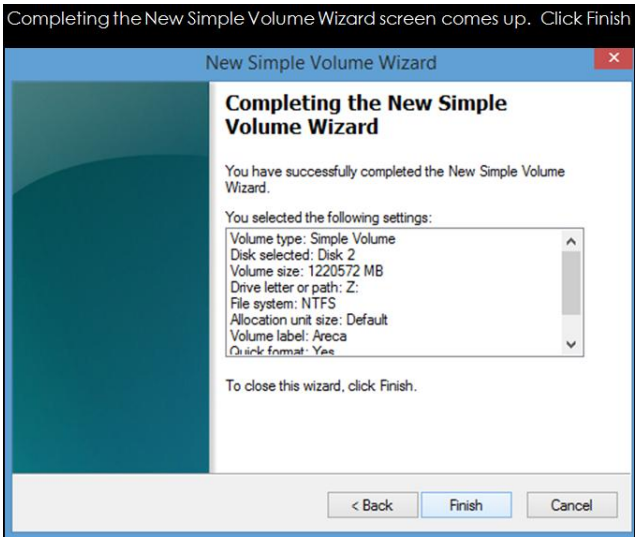
Assign Drive Letter and Click Next.


New Simple Volume Wizard
Assign Drive Letter or Path
For easier access, you can assign a drive letter or drive path to your partition.
Assign the following drive letter:
Z
Mount in the following empty NTFS folder:
Browse...
Do not assign a drive letter or drive path
< Back
Next >
Cancel

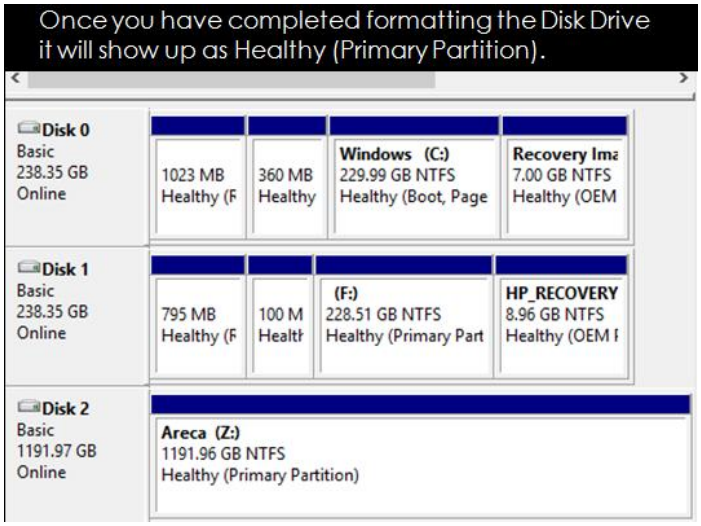
Format Partition . Enter Volume Label.
Select Perform Quick Format. Click OK


New Simple Volume Wizard
Format Partition
To store data on this partition, you must format it first.
Choose whether you want to format this volume, and if so, what settings you want to use.
Do not format this volume
Format this volume with the following settings:
File system:
NTFS
Allocation unit size:
Default
Volume label:
Areca
Perform a quick format
Enable file and folder compression
< Back
Next >
Cancel

Completing the New Simple Volume Wizard screen comes up. Click Finish


New Simple Volume Wizard
Completing the New Simple Volume Wizard
You have successfully completed the New Simple Volume Wizard.
You selected the following settings:
Volume type: Simple Volume
Disk selected: Disk 2
Volume size: 1220572 MB
Drive letter or path: Z:
File system: NTFS
Allocation unit size: Default
Volume label: Areca
To close this wizard, click Finish.
< Back
Finish
Cancel

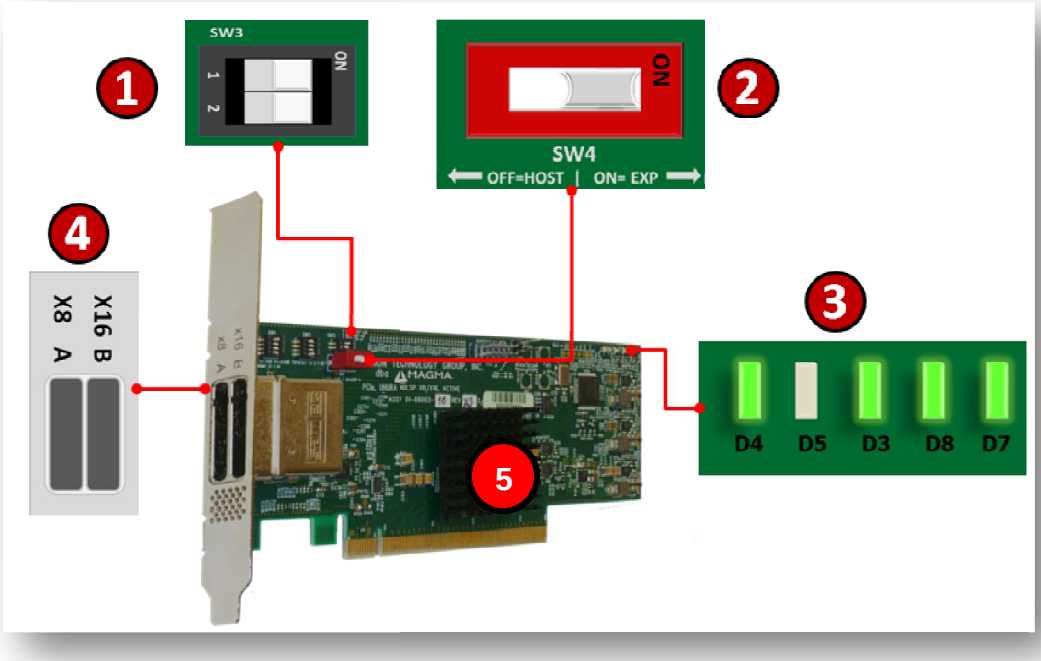
Once you have completed formatting the Disk Drive it will show up as Healthy (Primary Partition).



Chapter 3 Advanced Technical Information

Interface Card and LEDs

- An Interface card is capable of operating at x16, x8, x4, x2 and x1 link widths. With ExpressBox 3200-S8 the Interface card can only operate in a x8 speed.
- When the Amber LED (D5) is ON, the Reset is asserted.
- When the Amber LED (D5) is OFF, the Reset is de-asserted
- When the Interface card is being used as a Host, you need to set the SW4 to OFF position. When using it as an Expansion Interface card, the SW4 should be set to ON.

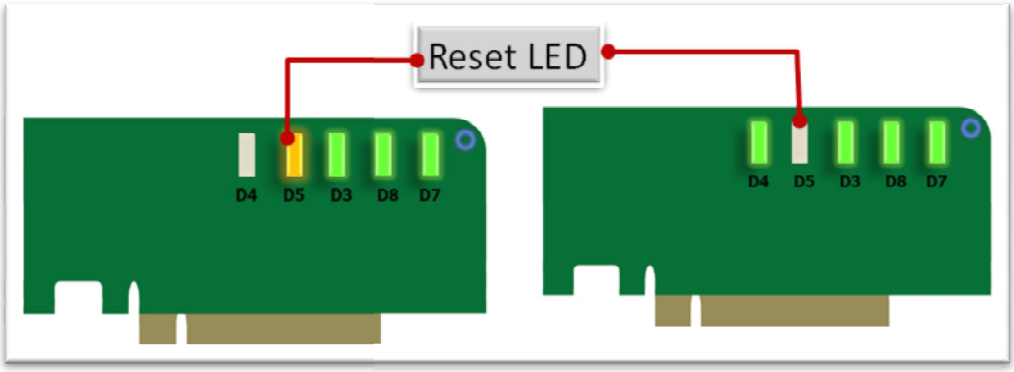


Interface Card	
1	SW3, dip switches for speed / lane setting (not required)
2	SW4, toggle switch for interface mode setting (host or expansion)
3	LED Indicators
4	Cable ports, you can only use the x8 port.
5	Heat sink

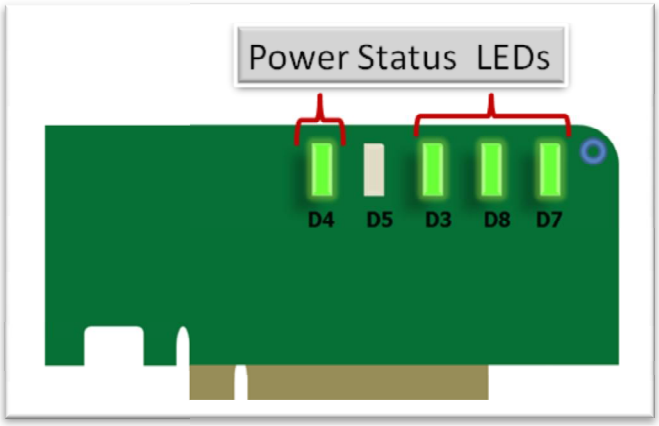
During normal operation LEDs D7, D8 and D3 should be on and solid green at all times. If any of these LEDs are off it means that there is a power problem with the unit.

LED D5 will turn on (Amber) when PCIe reset is asserted and turn off when the reset is de-asserted.

If any of the Interface cables are not connected correctly, the LED D5 will stay ON (Amber). Once the cables are connected correctly and the expansion board is powered on and the host is turned on then the amber LED D5 should be off.



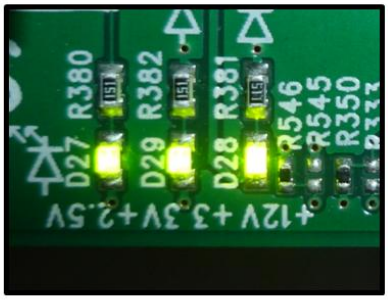
LEDs D4, D3, D8, AND D7 when illuminated signifies “power is good” (see table below).



LED	Name	Description / Functions	When OFF	When ON
D5	reset	PCIe fundamental reset. When ON system is in reset and/or the high speed cables have been connected incorrectly. When OFF while the main power is ON, the system is out of PCIe reset	de-asserted	asserted
D4	PCIe clock present	Lights up if a PCIe clock has been detected	No clock present	Clock is present
D3	3.3V good	When ON means that the locally generated 3.3V is good and within specification. When OFF means that there is a problem with the local 3.3V	3.3V is bad	3.3V is good
D8	1.0V good	When ON means that the locally generate 1.0V is good and within specification. When OFF means that there is a problem with the local 1.0V	1.0V is bad	1.0V is good
D7	1.0V good	When ON means that the locally generate 1.0V is good and within specification. When OFF means that there is a problem with the local 1.0V	1.0V is bad	1.0V is good

Backplane & LEDs

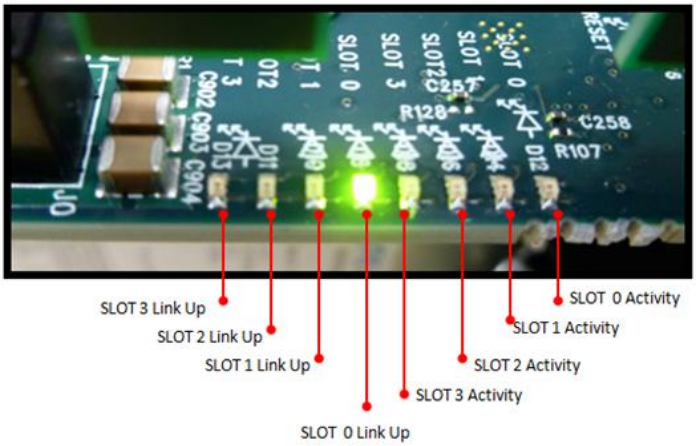
A functional / operational backplane will illuminate three solid green LEDs.



LED	Description
+12V, +3.3V and +2.4	are illuminated when the expansion chassis turns on

IMPORTANT
If you are only seeing One or Two Green LEDs that are illuminated on the Backplane after the Magma EXPRESSBOX 3200-S8 is turned on, this indicates that either there is a power supply problem or the standby-power cable is not attached to the Interface card.

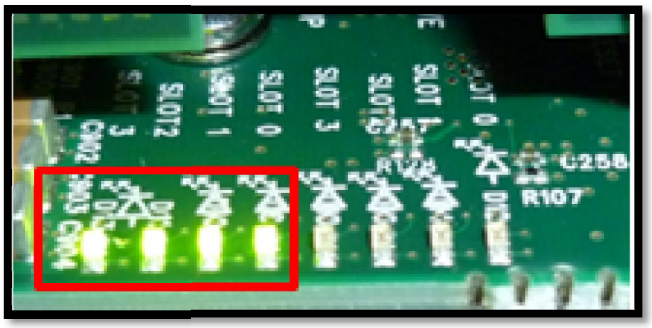
Link and Activity LEDs



LED	Description
SLOT 0 Link Up	Solid Green when good connectivity between the chassis and computer is established
SLOT 1 Link Up, SLOT 2 Link Up, SLOT 3 Link Up	Solid Green when there is/ are a PCIe card(s) in the slot and it is being recognized by switch (of the Expansion unit)
SLOT 0 Activity	Flickers when the Upstream slot (Interface card) is communicating back and fort with the host computer
SLOT 1 Activity, SLOT 2 Activity, SLOT 3 Activity	If the PCIE card(s) is /are executing command or being used or accessed by the application.

PCIE SLOT Link up LEDs

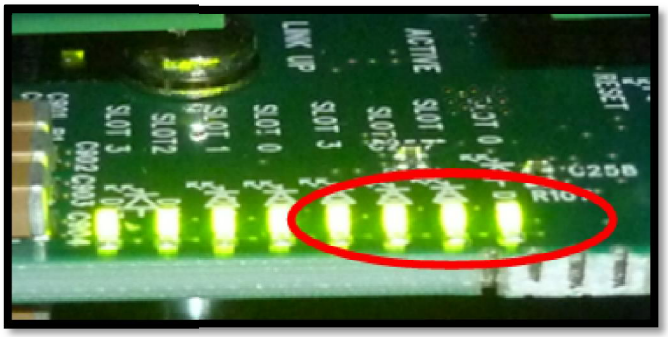
Each PCIe slot has designated LED indicators. SLOT Link up LED illuminates when a PCIe card is installed. When all of the PCIe slots are populated with PCIe cards all SLOT Link up LEDs should come on as shown from the picture below.



IMPORTANT
If you have PCIE cards installed in the PCIe slot(s) and none of the Link UP LEDs are illuminated this means that you either have a defective PCIe card or that the PCIe card is not seated all the way in the PCIe slot.

Activity LEDs

Each PCIe slot has its own Activity LEDs indicator. When this LED comes on, it signifies that the PCIe card is executing a command or being used / accessed by the application. It comes on as “solid green” and / or sometimes it blinks or flickers.



Internal Front Fan (Control Settings)

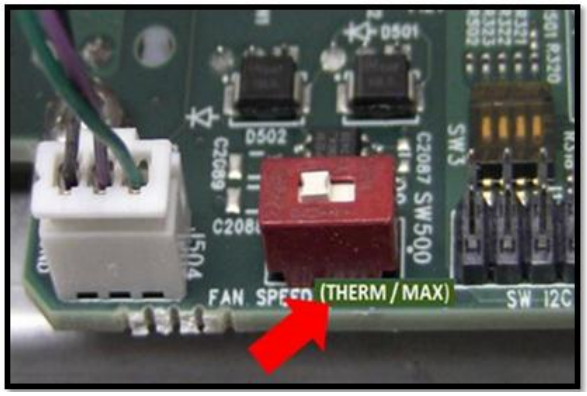
Some PCI Express cards produce substantial heat and must be cooled properly to eliminate over heating problems. One Fan is located on the front of the enclosure to provide cooling required for the hottest PCI Express Cards. Some graphics cards GPU's require these fans to be at full capacity to prevent over-heating.

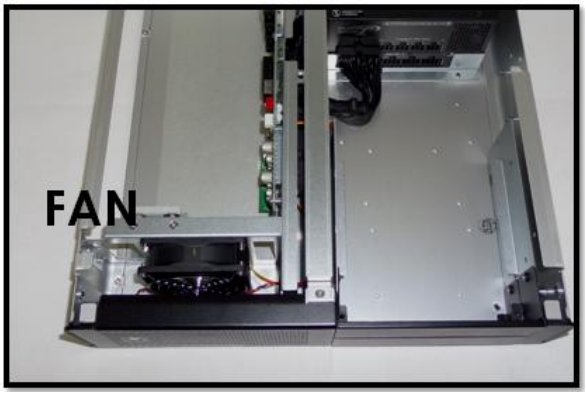
As a safety measure, Magma provides ExpressBox 3200-S8 with the fan functioning at full speed (MAX). However, noise is a concern for many applications. For noise sensitive applications, we have provided the

Thermistor setting (THERM) to help alleviate fan noise in situations when a low heat producing card is installed in the Magma ExpressBox 3200-S8.

By default, the fan will run at maximum speed when the DIP Switch is set to MAX. When setting to Thermistor (THERM), the fan speed is controlled by the temperature inside the enclosure. Thermally controlled fans will run at maximum speed when the Thermistor senses temperature at or above an upper limit. Fans will run at minimum speed if the temperature is at or below a lower limit.

To set the FAN (speed) locate the red DIP switch SW500 on the expansion board. MAX = Fan runs at fast mode. THERM = Fan is set to Thermistor controlled. The DIP switch SW500 controls the front fan of the ExpressBox 3200-S8 expansion unit.



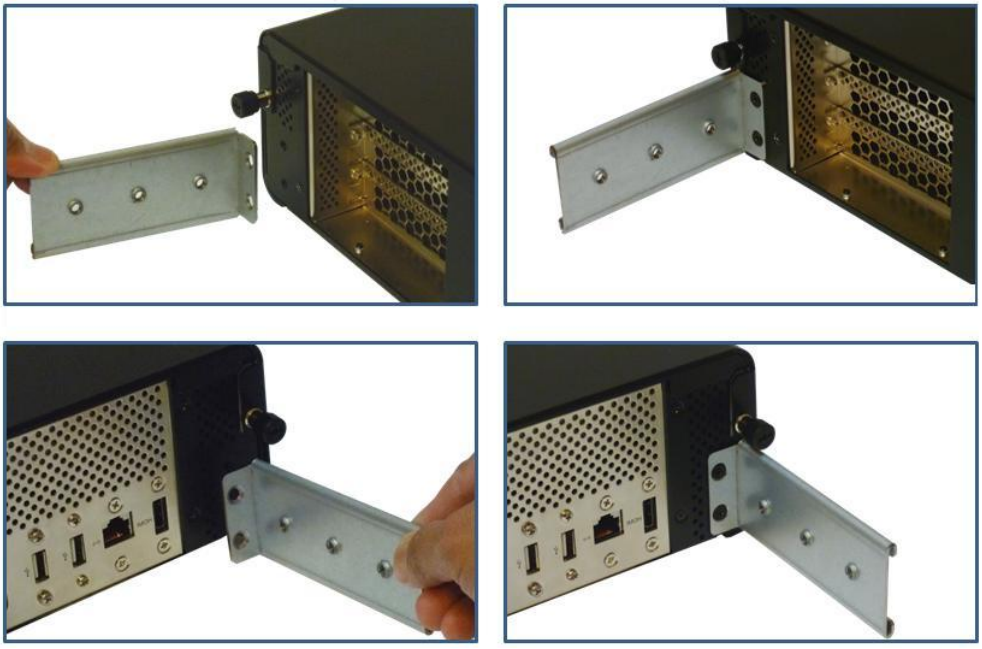


Rack-Ears Installation

Remove the left and right metal brackets as shown from the pictures below.

Mount the left and right rack ears. Use the existing screws on the unit to secure the rack ears.

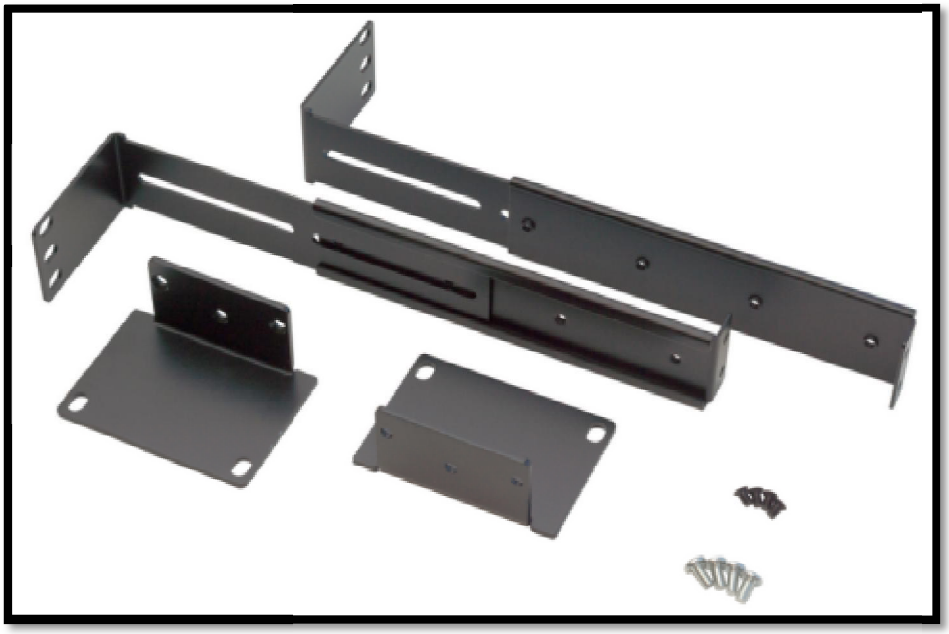
Mount the left and right extender rails to rear panel of the unit as shown from the pictures below.



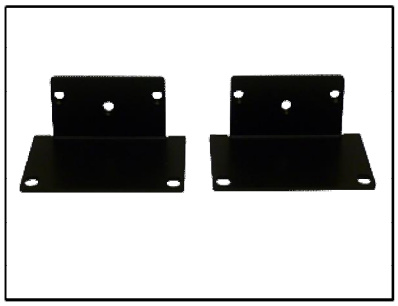
Rackmount Kits

A rackmount kit is composed of the following items (see pictures below)

1. 2 Front Rack Ears
2. 2 Rear Inner Ears with four M4 SCREWS
3. 2 Rear Long Ears (8 inch extender) with four #10-32 SCREWS

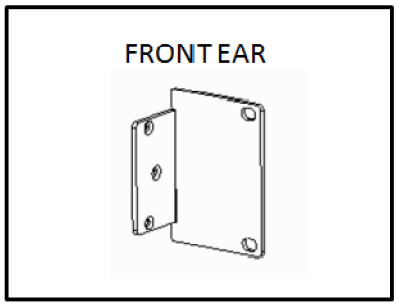


Front Ear, QTY 2

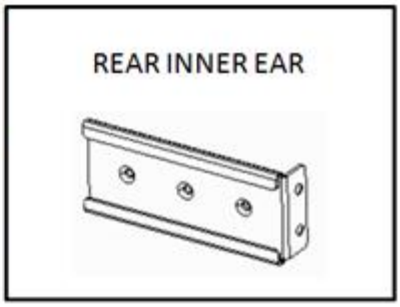


Screws are not included in the Kit.

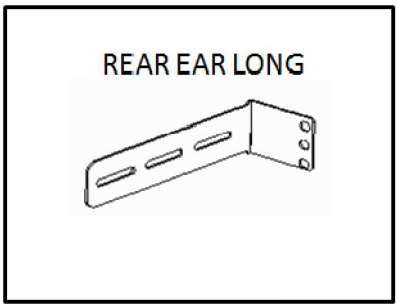
Use the existing 3 screws on the unit to secure the rack ears. See Rack Ears Installation, page 52



Rear Inner Ear, QTY 2



Rear Ear Long (8 inch extender), QTY 2



Storage Kit

Storage Kit comes with 32 screws for mounting the disk drives. This is only available for EXPRESSBOX 3200-S8.

QTY 32 screws
4 screws per bag
4 screws per drive.

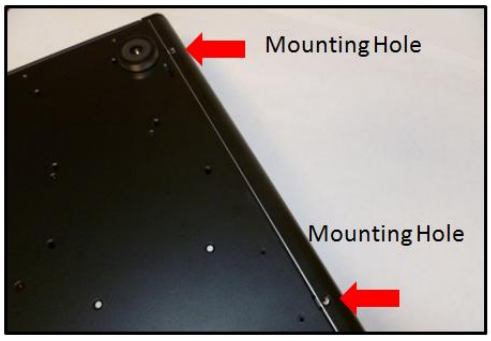
Securing the Top Cover

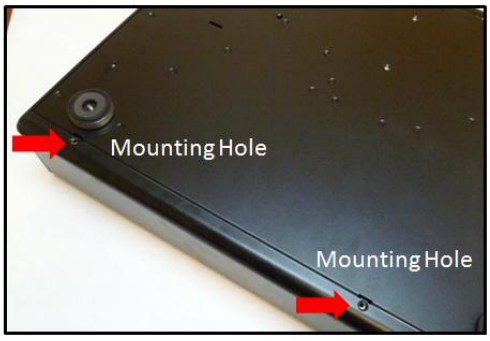
It is best to secure the top cover with the three thumb screws on the back of the unit when carrying, transporting or shipping the expansion unit. If required, additional retention of the cover may be achieved using the four mounting holes under the enclosure.

NOTE: All ExpressBox 3200-S8 models come with the 4 mounting screws (enclosed in a small plastic bag) for the option of securing the bottom part of the cover to the chassis.

1. Turn over the expansion chassis to expose the bottom part where the mounting holes are located as shown for the pictures below.

2. Install the screws to their designated mounting holes to secure the bottom part of the cover as shown from the pictures below.





Power Supply – Fanless

Features

- Full Modula Cabling Design
- Fanless-0dBA
- DC to DC Converter Design
- Conductive Polymer Aluminum Solid Capacitors
- Highly Reliable 105C Aluminum Electrolytic Capacitors
- Tight Voltage Regulation [+/-2%]
- Active Power Factor Correction [99% PF Typical]
- High +12V Output
- Gold Plated High Current Terminals
- Dual Sided PCB Layout
- Ultra Ventilation [Honeycomb Structure]
- Multi-GPU Technology Support
- All-in-One DC Cabling Design
- Easy Swap Connector
- Universal AC Input

PSU Specifications

Model	SS-520FL² Active PFC F3 (Platinum-520 Fanless)				
Intel Specifications	ATX12V / EPS12V				
Dimensions	L 160 x W 150 x H 86mm				
Efficiency	80 PLUS® Platinum / Energy Star / ErP Lot 6 2013 compliant				
Protection Features	OPP / OVP / UVP / OCP / OTP / SCP				
Hazardous Materials	WEEE / RoHS				
AC Input Range	100-240V~ 7-4A 50-60Hz				
Connectors	M/B 24/20 Pin Connector x 1 (610mm) CPU 8/4 Pin x 1 (650mm) PCI-E 8/6 Pin x 2 Peripheral 4 Pin x 5 SATA x 6 Floppy x 1 (Y-adapter)				
DC Output Voltage	+3.3V	+5V	+12V	-12V	+5Vsb
Maximum Load	20A	20A	43A	0.5A	2.5A
Combined Load	100W		516W	6W	12.5W
Total Output	520W				

Power Distribution

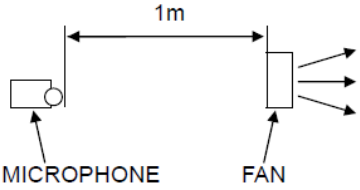
Model	+3.3V	+5V	+12V	-12V	+5Vsb	Total Power
Platinum-520 FANLESS	20A	20A	43A	0.5A	2.5A	520W
	100W		516W	6W	12.5W	

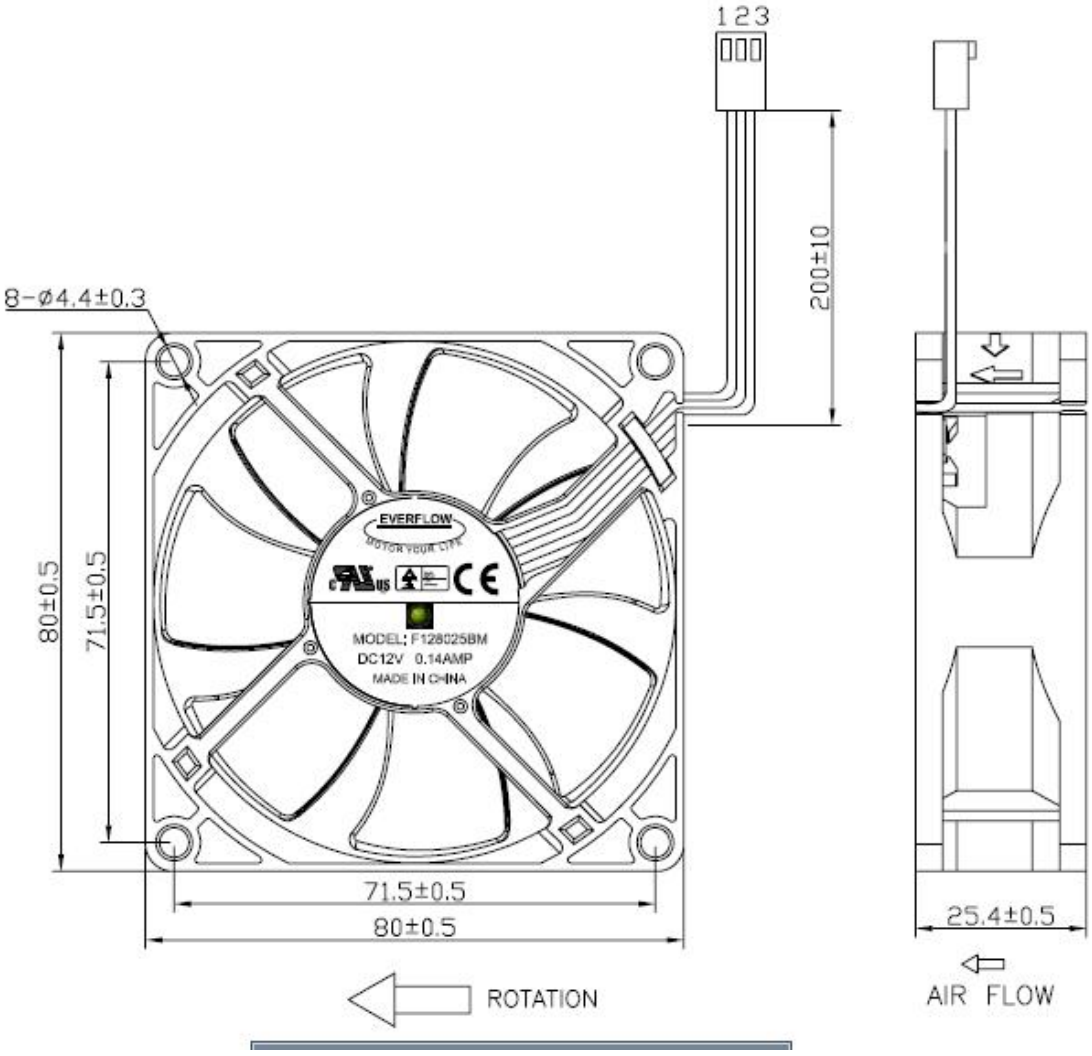
Wire Configuration

Cable / Model	Main Power (20 / 24P) 600mm	EPS12V / ATX12V (8P / 4P) 650mm	EPS12V (8P) 650mm	PCI-E (6P / 8P) 600mm	SATA	Peripheral (4P)	FDD(4P) (Y-adapter)
Platinum-520 FANLESS	1	1	0	2	6	5	1

Internal Front Fan

Fan Specifications

MECHANICAL SPECIFICATIONS		
ITEM	DESCRIPTION	
EXTERNAL DIMENSIONS	80x80x25	See picture below
BEARING	TWO BALL BEARINGS	
NET WEIGHT	75g	
ELECTRICAL SPECIFICATIONS		
RATED VOLTAGE	12 V DC	
START VOLTAGE	7 V DC	
OPERATING RANGE	7V~13.2 V DC	
CONSUMING CURRENT	0.14Amp (MAX. 0.20Amp)	
RATED SPEED	2400RPM±250RPM	CONTINUOUS 3 MINUTE OPERATION AT AMBIENT TEMPERATURE OF 25°C
AIRFLOW	34.35CFM 0.97 m3/min	
STATIC PRESSURE	2.46mmH2O	
SOUND LEVEL	MAX. 28dB(A)	



NOTES:

LEAD Wire UL 1007 AWG#26
PIN 1: Black WIRE (-)
PIN 2: Red Wire (+)
PIN 3: Yellow Wire (Signal)

Chapter 4 Troubleshooting

Q: If the Interface card fails to power up, what should I check?

A: Make sure it is firmly seated into the PCIe card slot 0

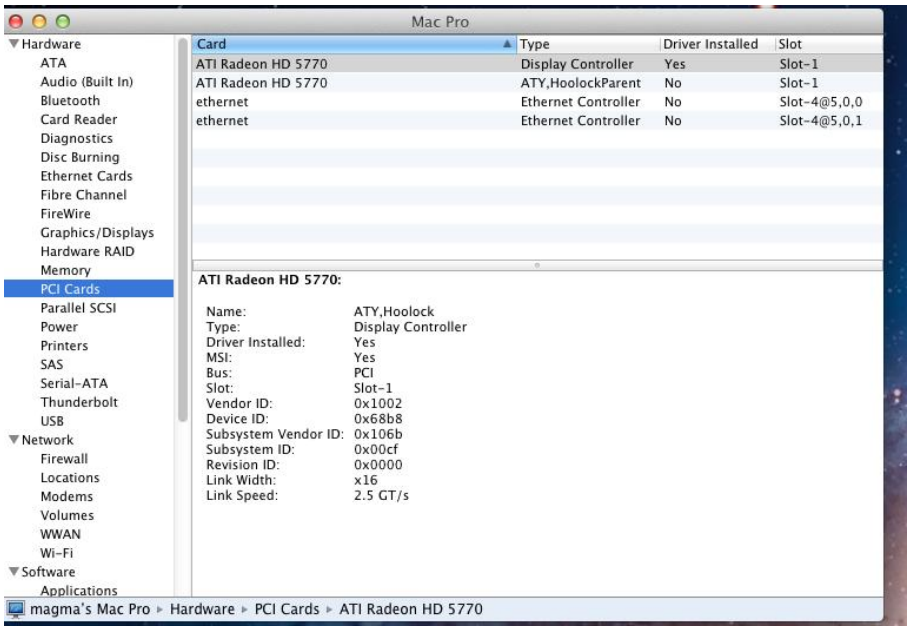
Q: How do I know if the ExpressBox3200-S8 power supply is working?

A: If the Interface card is properly seated and connected, there should be 4 green LEDs lit on the Interface card, 3 green LEDs lit on the backplane, and 1 green LINK LED should be turned ON.

Q: Will ExpressBox 3200-S8 show up in Apple System Profiler or Windows Device Manager without any PCIe cards installed?

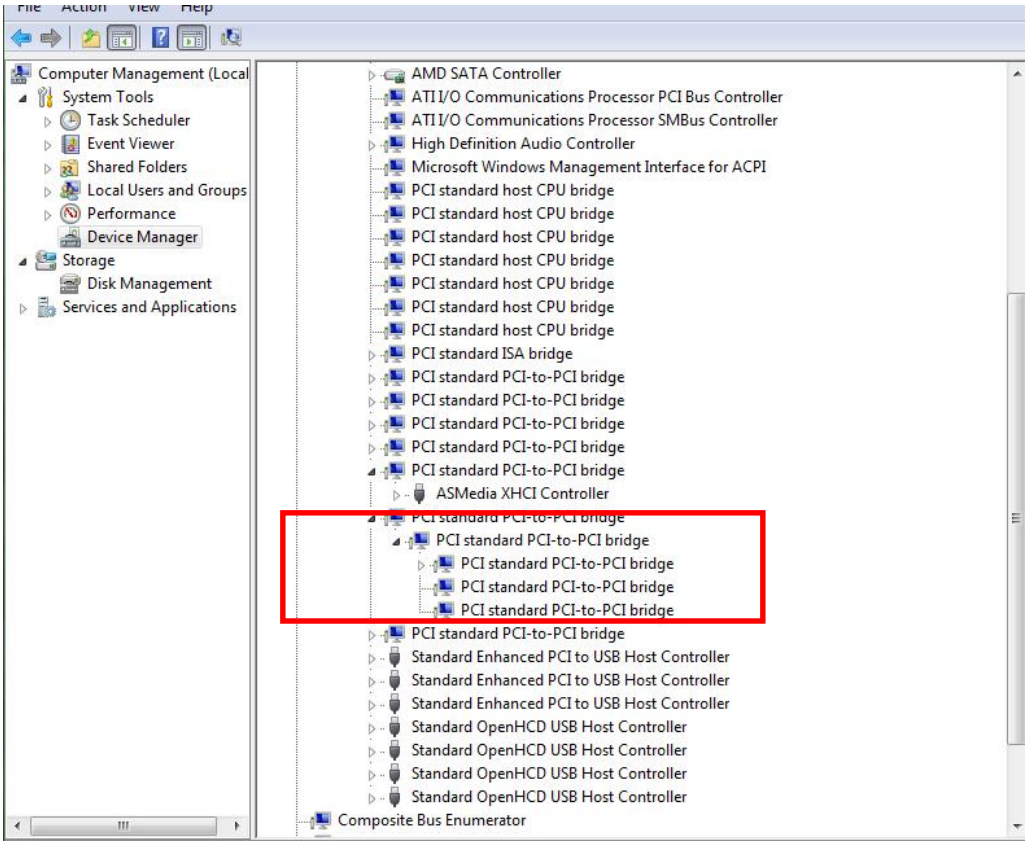
A: Yes.

In Apple System Profiler **à** PCI Cards **à** It will show all the PCIe cards that are being detected.



In Windows **à** Control Panel **à** Device Manager **à** View by connection

You should see these three PCI-to-PCI bridges. Right click on it and select “Properties”, select Hardware Ids from dropdown list, see picture below.

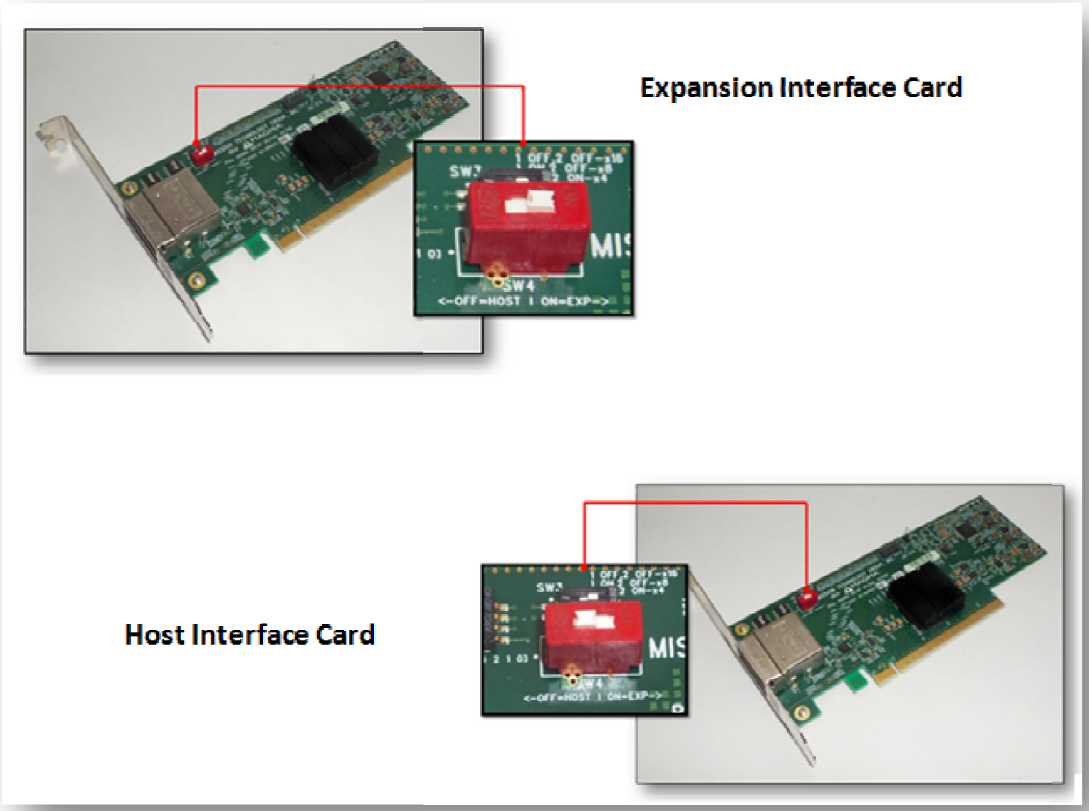

File Action View Help
Computer Management (Local
System Tools
Task Scheduler
Event Viewer
Shared Folders
Local Users and Groups
Performance
Device Manager
Storage
Disk Management
Services and Applications
AMD SATA Controller
ATI I/O Communications Processor PCI Bus Controller
ATI I/O Communications Processor SMBus Controller
High Definition Audio Controller
Microsoft Windows Management Interface for ACPI
PCI standard host CPU bridge
PCI standard host CPU bridge
PCI standard host CPU bridge
PCI standard host CPU bridge
PCI standard host CPU bridge
PCI standard host CPU bridge
PCI standard host CPU bridge
PCI standard ISA bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
ASMedia XHCI Controller
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
Standard Enhanced PCI to USB Host Controller
Standard Enhanced PCI to USB Host Controller
Standard Enhanced PCI to USB Host Controller
Standard OpenHCD USB Host Controller
Standard OpenHCD USB Host Controller
Standard OpenHCD USB Host Controller
Standard OpenHCD USB Host Controller
Composite Bus Enumerator

Q: My host computer is having problem linking up to the expansion chassis. I have both Interface cards installed and seated firmly in their corresponding slot; one is installed in the host computer PCIe slot and the other one in the expansion PCIe slot. Is there something wrong with the Interface card?

A: When using the 01-08003-00, which comes in a pair, one should be set to OFF-host and the other is set to ON-Exp.

1. There's a Red Dip switch on the Interface card that must be set correctly in order to work. The Red Dip switch is labeled SW4.
2. 01-08003-00, SW4 when set to ON=EXP should be installed only inside the Magma Expansion unit.
3. 01-08003-00, SW4 when set to OFF=HOST should be installed inside the host computer.
4. If the 01-08003-00 cards are not set properly your computer won't link up with the Magma expansion unit.

See pictures below:



Q: My computer won't boot up while the Magma ExpressBox 3200-S8 is connected, what should I do?

A: When the computer is having problem starting up while the Magma ExpressBox 3200-S8 is attached, it is an indication that you either have a faulty ExpressBox 3200-S8 expansion unit or ~~a~~ malfunctioning PCIe cards that are installed in the expansion unit.

Start removing all the PCIe cards in the chassis. Boot the computer up and see if it works.

- If the computer showed no problems starting up (with PCIe cards removed), this means that the PCIe card(s) is/are causing the problem and not the expansion unit.
- If the computer is still exhibiting the same issue without any PCIe cards installed in the chassis, this means that you have a faulty Magma device or hardware.
- Start swapping the cable first. See if that fixes the problem.
- The next would be to replace the Host Interface card.
- If you are still having the same problem after replacing the Magma cable and Host Interface card, this means that you have a faulty expansion chassis.
- Inside the expansion chassis there are three major components and these are the Expansion Interface card, Backplane and Power Supply unit.

Chapter 5 How to Get More Help

You can visit the Magma Technical Support FAQ pages on the Internet at: www.magma.com/support/

Contacting Technical Support

Our support department can be reached by fax at (858) 530-2733 or by phone at (858) 530-2511. Support is available Monday through Friday, 8:00 AM to 5:00 PM PT. When contacting MAGMA Technical Support make sure to include the following information:

1. Exact and correct Magma Serial #
2. Service Ticket or Case # (if you already submitted an online request)
3. Computer Type & Model: Operating System
4. Make & Model of PCI/PCIe cards: Application
5. Problem description
6. Your full name and contact number(s).

When submitting an online technical support request always provide a valid working e-mail address, phone number, shipping address and proper contact name. Check your e-mail for an automated response containing the case # and updates. You can also visit our web site at: www.magma.com/support. For a quick response, use the Technical Support and RMA Request Form available in the Support Section of the website. Simply complete the form with all required information. Please make sure that your problem description is sufficiently detailed to help us understand your problem.

Shipping or Transporting of Expansion Unit with PCI / PCIe cards

Any PCIe cards in should be removed (or not to be installed) prior to shipment to avoid or prevent possible damage. Note: Expansion board and PCIe / PCI cards that arrive damaged in shipment will not be covered under warranty.

Returning Merchandise to MAGMA

If factory service is required, a Service Representative will give you a Return Merchandise Authorization (RMA) number. Put this number and your return address on the shipping label when you return the item(s) for service. Magma will return any product that is not accompanied by an RMA number. Please note that Magma WILL NOT accept COD packages, so be sure to return the product freight and duties-paid.

Ship the well-packaged product to the address below:

Attention: RMA # _____, MAGMA
9918 Via Pasar
San Diego, CA 92126
USA

It is not required, though highly recommended, that you keep the packaging from the original shipment of your Magma product. However, if you return a product to Magma for warranty repair/ replacement or take advantage of the 30-day money back guarantee, you will need to package the product in a manner similar to the manner in which it was received from our plant. Magma cannot be responsible for any physical damage to the product or component pieces of the product (such as the host or expansion interfaces for the expansion chassis) that are damaged due to inadequate packing. Physical damage sustained in such a situation will be repaired at the owner's expense in accordance with Out of Warranty Procedures. Please, protect your investment, a bit more padding in a good box will go a long way to insuring the device is returned to use in the same condition you shipped it in. Please call for an RMA number first.

Appendix A Compliance

FCC

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE
The assembler of a personal computer system may be required to test the system and/or make necessary modifications if a system is found to cause harmful interferences or to be noncompliant with the appropriate standards for its intended use.

Industry Canada

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numériqué de la classe A est conformé à la norme NMB-003 du Canada

CE

The product(s) described in this manual complies with all applicable European Union (CE) directives. Magma will not retest or recertify systems or components that have been reconfigured by customers

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